



WAREHOUSE MANAGEMENT
RELEASE 11.01.00
FUNCTIONAL REQUIREMENT SPECIFICATION

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1 Introduction

This document details the requirements of the functions implemented with the Warehouse Management application.

Warehouse Management is a module used to maintain stocks within a warehouse, from creating goods receipts out of purchase orders, receiving the goods into the warehouse, performing warehouse operations like split, merge, and move to shipping according a planned goods issue.

Each requirement is composed of a name (e.g., Stock Records Editor) and a unique identifier (e.g., GID-1234567) and is extended with its business attributes (GxP Relevance, Business Impact) and its compliance attribute (21 CFR Part 11 Relevance).

In some cases, additional context information is available, indicated in the document by a frame and a gray background color. This context information is related to the respective requirement, but not part of the formal requirement description.

The revision history lists the changes made to the document with the previous FactoryTalk PharmaSuite release as the comparison baseline. It provides individual tables for "Updated", "Added", and "Deleted" requirements that juxtapose the previous approved version with the new approved version of an item.

Typographical Conventions

This documentation uses typographical conventions to enhance the readability of the information it presents. The following kinds of formatting indicate specific information:

Bold typeface	Designates user interface texts, such as <ul style="list-style-type: none">▪ window and dialog titles▪ menu functions▪ panel, tab, and button names▪ box labels▪ object properties and their values (e.g., status).
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2 Editors (WH0100+)

Warehouse Management provides editors to maintain master data, runtime data, or to allow the manual creation of orders for transports, orders for picking, goods receipts, and goods issues.

2.1 Common Editor Capabilities (WH0100.01+)

With the common editor capabilities of Warehouse Management, a user shall have the same user experience independent of the functionality for which an editor is designed.

2.1.1 GID-2789112 Filters (WH0100.01.01)

Each editor provides the possibility to execute filters in order to limit the data to be displayed based on predefined attributes.

The available filter criteria can differ from the columns defined as editor attributes. Example: in the list, part is shown as [part name.part revision] and the filter allows to limit the data separated by part.name and part.revision.

For attributes of the **Date** or **Date and Time** data types, a filter can optionally implement the attribute twice to allow filtering by a time range.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	Yes

2.1.1.1 GID-2789113 FILTER OPERATIONS (WH0100.01.01.01)

Create a filter

Allows to define a filter name, predefined filter attributes, a sorting criterion, and, depending on the user's access privileges, if a global or a user-specific filter is created.

TIP

Modular Framework provides the `editGlobalFilter` access privilege for controlling the changes to global filters.

Most of the attributes of an editor are available as filter attributes. For a single attribute, the following operators are available for filtering:

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Operator	Meaning
Any	No limitation.
Contains	Is part of the value (String data type only).
Equals	Is exactly the defined value (String , Option list , Boolean data types only).
Starts with	Starts with the defined value (String data type only)
Equal to	Is equal to the defined value (Numeric data type only).
Not Equal to	Is different from the defined value (Numeric data type only).
Less than	Is less than the defined value (Numeric data type only).
Greater than	Is greater than the defined value (Numeric data type only).
Less than or Equal	Is less than the defined value (Numeric data type only).
Greater than or Equal	Is greater than the defined value (Numeric data type only).
Before (exclusive)	Date/time is before the defined value (Date/time data type only).
After (inclusive)	Date/time equals or is after the defined value (Date/time data type only).

Edit a filter

Allows to change the filter data defined during filter creation.

Delete a filter

Allows to delete a filter. The user must confirm the deletion of the filter.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

2.1.2 GID-2789114 Export Data (WH0100.01.02)

The export functionality allows to transfer data via .xlsx spreadsheet to a different system and generate an .xlsx spreadsheet as a backup or to generate MS Excel-based reports.

To execute the export functionality, an editor-specific access privilege is required.

In case a filter is active, the export only exports the data sets to the .xlsx spreadsheet that correspond to the filter.

The exported .xlsx spreadsheet always contains all main object data of the editor. This covers the data of the main grid, not data of a sub-grid or visible assignments.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	Yes

2.1.3 GID-2789115 Import Data (WH0100.01.03)

The import functionality allows to transfer data via .xlsx spreadsheet to the current system.

This simplifies an initial data setup or adding specific data.

To execute the import functionality, an editor-specific access privilege is required.

During import, all mandatory attributes of a data set must be filled (as required for the add operation). Logically evaluated columns of the editor are ignored during import, even though they are part of the export (logically evaluated columns shall be documented at the specific editor).

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

2.1.4 GID-2789116 Refresh Data (WH0100.01.04)

The refresh operation allows to reload the data of the editor from the backend. It can be executed manually with the editor-specific **Refresh** button.

If other editor operations change the editor-related data, they execute the data refresh for this data set automatically when returning to the editor.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

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2.1.5 GID-2789117 View Data (WH0100.01.05)

The view operation allows to open a read-only dialog with all the data of the selected data set. It can be executed with a double-click on a data set of the editor list.

The dialog provides a next and previous operation to navigate through the editor list.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	Yes

2.2 Transport Order Editor (WH0100.02+)

Transport orders allow to schedule and plan stock movements. Example use cases are:

- parts are available at a production line when needed.
- guide the fork-lift driver to the storage unit to which the logistic unit should be transferred or is allowed to be transferred.
- separate the goods receipt process from transports, but already reserve the space in the high-rack warehouse for the stock.

During the creation of a transport order, the user shall be supported by selecting a target that is allowed and/or preferred for the part to be transported.

As a warehouse supervisor, I want to have an overview of the transports and their statuses, source and target, and who created, started, and finished them.

As a warehouse supervisor, from the management client, I want to cancel already planned or abort started transports for logistic units that are not necessary anymore or cannot be executed.

2.2.1 GID-2789119 Transport Order Attributes (WH0100.02.01)

Name	Data type	Format or Length	Input	Comment
Identifier *	String	80	I	Auto-generated according to Warehouse configuration (default: TO%08d).
Logistic Unit / Sublot * [Identifier]	String	80	I	Commonly the logistic unit identifier. For logistic units of the Payload Only category, the subplot identifier is shown instead.
Status *	String	---	R	Possible values: Created , Started , Finished , Canceled , Aborted .
Priority *	Option list	---	M	Extendable WH_TransportOrderPriority option list with the following values: High , Medium (default), Low .
Planned Finish Time *	Date and Time	Localized at UI	O	---
Start Site * [Name]	Object link to Site	---	R	Site of logistic unit at time of TO creation.
Start Area * [Name]	Object link to Area	---	R	Area of logistic unit at time of TO creation.
Start Storage Zone * [Name]	Object link to Storage zone	---	R	Storage zone of logistic unit at time of TO creation.
Start Storage Unit * [Name]	Object link to Storage unit	---	R	Storage unit of logistic unit at time of TO creation.
Target Site * [Name]	Object link to Site	---	M	Planned site of logistic unit.
Target Area * [Name]	Object link to Area	---	M	Planned area of logistic unit
Target Storage Zone * [Name]	Object link to Storage zone	---	O	Planned storage zone of logistic unit.
Target Storage Unit * [Name]	Object link to Storage unit	---	O	Planned storage unit of logistic unit.

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Name	Data type	Format or Length	Input	Comment
Initiator *	String	80	O	Example: GR or GI Identifier.
Initiator Type *	Option list	---	O	Extendable WH_TransportOrderInitiatorType option list with the following values: GoodsReceipt , GoodsIssue .
Finish Site [Name]	Object link to Site	---	O	Site of logistic unit after the TO has been aborted, canceled, or finished.
Finish Area [Name]	Object link to Area	---	O	Area of logistic unit after the TO has been aborted, canceled, or finished.
Finish Storage Zone [Name]	Object link to Storage zone	---	O	Storage zone of logistic unit after the TO has been aborted, canceled, or finished.
Finish Storage Unit [Name]	Object link to Storage unit	---	O	Storage unit of logistic unit
Creation Time	Date and Time	Localized at UI	O	Automatically filled at TO creation.
Creation User	String	80	O	Login name of user who created the TO. Automatically filled.
Start Time	Date and Time	Localized at UI	O	Automatically filled at TO creation.
Start User	String	80	O	Login name of user who started the TO. Automatically filled.
Finish Time	Date and Time	Localized at UI	O	Automatically filled after the TO has been aborted, canceled, or finished.
Finish User	String	80	O	Login name of user who aborted, canceled, or finished the TO. Automatically filled.
Comment	String	2000	O	---

LEGEND

*=default visibility in the editor's list

M=mandatory; R=read-only; I=insert only and mandatory; O=optional

Attribute	Value
MES-Business: GxP relevance	No
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

2.2.2 Transport Order Operations (WH0100.02.02+)

([GID-2789123](#)) Besides the common operation for Filters (WH0100.01.01) ([GID-2789112](#)), Export Data (WH0100.01.02) ([GID-2789114](#)), Refresh Data (WH0100.01.04) ([GID-2789116](#)), and View Data (WH0100.01.05) ([GID-2789117](#)), this editor provides the following additional operations:

- edit a transport order ([GID-2789121](#))
- cancel a transport order ([GID-2789122](#)).
- abort a transport order link.

2.2.2.1 GID-2789121 EDIT A TRANSPORT ORDER (WH0100.02.02.01)

Already existing transport orders can be changed as long as the transport order is in the **Created** status. For all other statuses, the **Edit** button is insensitive.

The dialog shows the following data:

- [Transport order] Identifier, read-only
- Logistic Unit [Identifier] (in case the TO was created for a LU of the **Payload Only** category, it shows the caption Sublot and as data the subplot identifier), read-only
- Start Site [Name], read-only
- Start Area [Name], read-only
- Start Storage Zone [Name], read-only
- Start Storage Unit [Name], read-only
- [Planned] Target Site [Name], mandatory
- [Planned] Target Area [Name], mandatory
- [Planned] Target Storage Zone [Name], mandatory
- [Planned] Target Storage Unit [Name], mandatory
- Initiator, optional
- Initiator Type, optional
- Priority, mandatory

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- Planned Finish Time, optional
- Comment, optional

The selection of a planned target supports the user as follows:

- In case a lower level is selected for the topology, all related higher levels are set automatically.
Example: In case a storage zone is selected, the related area and site are set automatically)
- In case a higher level is selected for the topology, for any lower level, only the matching data is available for selection.
- User inputs also reduce the suggested values accordingly.
- If the planned target storage unit is changed, the save action must perform the Check Target Storage Constraints (WH0300.02.01) function ([GID-2789339](#)) and the Check Target Storage Conditions (WH0300.02.07) function ([GID-2789340](#)) for the new target and update the storage unit's number of expected LUs for the old and new planned target storage unit.

The following error cases can occur:

- In case a transport order is saved without providing all mandatory data, the user is informed with an error message and the action is not completed.
- In case a transport order is saved with an invalid value, the user is informed with an error message and the action is not completed.
- In case a transport order is saved and, in the meantime, its status was changed to a status that does not allow to perform the action, the user is informed with an error message and the action is not completed.
- In case a transport order is saved and a storage constraint check is violated, the user is informed with an error message and the action is not completed.
- In case a transport order is saved and a storage condition for the target storage unit is violated, the user is informed with an error message and the action is not completed.

Attribute	Value
MES-Business: GxP relevance	No
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	Yes

2.2.2.2 GID-2789122 CANCEL A TRANSPORT ORDER (WH0100.02.02.02)

Transport orders that have not been started yet can be canceled as long as the transport order is in the **Created** status. For all other statuses, the **Cancel** button is insensitive.

Before the operation is performed with the Transport Order End Actions (WH0300.01.04) function ([GID-2789336](#)), the user must accept a confirmation message with [OK]. With [Cancel], it is possible to stop the cancellation of the transport order.

Since the logistic unit is not moved, the transport order will have no entry in the transaction history.

The following error case can occur:

- In case a transport order is canceled and, in the meantime, its status was changed to a status that does not allow to perform the action, the user is informed with an error message and the action is not completed.

Attribute	Value
MES-Business: GxP relevance	No
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	Yes

2.2.2.3 GID-2789123 ABORT A TRANSPORT ORDER (WH0100.02.02.03)

Transport orders that have been started and not yet finished can be aborted as long as the transport order is in the **Started** status. For all other statuses, the **Abort** button is insensitive.

The dialog shows the following data:

- [Transport order] Identifier, read-only
- Logistic Unit [Identifier] (in case the TO was created for a LU of the **Payload Only** category, it shows the caption Sublot and as data the subplot identifier), read-only
- Finish Storage Unit [Name], mandatory, prefilled with the current storage unit of the transport order's logistic unit
- Comment, optional. The comment is appended to an existing comment.

Before the operation is performed with the End Transport Order Actions (WH0300.01.04) function ([GID-2789336](#)), the user must save the data. With [Cancel] it is possible to stop aborting the transport order.

In case the logistic unit is moved, for all related transaction history entries, **Transport Order** is the **Transaction Process** and the transport order identifier is the **Transaction Process Reference**.

The following error cases can occur:

- In case a transport order is aborted without providing all mandatory data, the user is informed with an error message and the action is not completed.
- In case a transport order is aborted with an invalid value, the user is informed with an error message and the action is not completed.
- In case a transport order is aborted and, in the meantime, its status was changed to a status that does not allow to perform the action, the user is informed with an error message and the action is not completed.
- In case a transport order is aborted and the Transport Order End Actions (WH0300.01.04) function ([GID-2789336](#)) fails, the user is informed with an error message and the action is not completed.

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Attribute	Value
MES-Business: GxP relevance	No
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	Yes

2.2.3 *GID-2789124 Transport Order Access Privileges (WH0100.02.03)*

For transport orders, two basic access privileges are available:

- WH_viewTransportOrder
- WH_editTransportOrder

For state handling, additional access privileges are available:

- WH_abortTransportOrder
- WH_cancelTransportOrder
- WH_createTransportOrder
- WH_finishTransportOrder (used by RESTful API only)
- WH_startTransportOrder (used by RESTful API only)

Based on the privileges, the corresponding buttons are enabled or disabled.

Attribute	Value
MES-Business: GxP relevance	No
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	Yes

2.3 Stock Records Editor (WH0100.03+)

The Stock Records editor provides an overview of the inventory of a warehouse and allows some management operations on a selected inventory record such as

- adjust the quantity of a payload,
- change the status of a subplot,
- print labels for a logistic unit or subplot,
- create a transport order for a logistic unit

As a warehouse office worker, supervisor, or warehouse manager, I want to search/view the inventory stock records so that I can answer different questions. For example:

- Where is logistic unit LU14?
- What does logistic unit LU14 contain?
- Which logistic units contain material A?
- Where is all of material A located?
- What is the content of storage zone B?

As a warehouse supervisor, I want to be able to print a label for a logistic unit or subplot in case the original is not available or readable anymore.

As an operator, I want to adapt a payload quantity at a Warehouse Management client, so that the quantity reflects the reality.

As a warehouse supervisor, I want to create ad-hoc transports for logistic units from stock records that should be visible to the warehouse operators for execution.

As a quality assurance person, I want to adapt the subplot status according to analysis results. The subplot status shall be represented at least with one of the three statuses **Blocked**, **Quality Inspection**, or **Unrestricted**.

As a quality assurance person, I want to mark a subplot of a batch as not usable even if other subplots of the batch have no restrictions.

As a supervisor or operator I want to be able to easily check the current cold chain situation of a subplot in order to learn how long the subplot can still be used before the thresholds are exceeded.

2.3.1 *GID-2789126 Stock Records Attributes (WH0100.03.01)*

Name	Data type	Format or Length	Input	Comment
Logistic Unit * [Identifier]	String	---	R	Empty for logistic units with subplot of the Payload Only category.
Path	String	---	R	Stacked LU identifiers are concatenated with '/'. First LU is always the root LU.
Part * [Name][.Revision]	Object link to Part	---	R	Part of the payload.
Part Description	Object link to Part	---	R	---
Batch *	Object link to Batch	---	R	Batch of the payload.
Quantity *	Measured value	With UoM	R	Quantity of the payload.
Sublot * [Identifier]	Object link to Sublot	---	R	Sublot of the payload.
Storage Unit * [Name]	Object link to Storage unit	---	R	---
Storage Zone * [Name]	Object link to Storage zone	---	R	---

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Name	Data type	Format or Length	Input	Comment
Area * [Name]	Object link to Area	---	R	---
Site * [Name]	Object link to Site	---	R	---
Sublot Status	Object link to Sublot and its status	Element of SublotStatus choice list	R	Sublot of the payload. Choice list elements: 10 - Blocked 20 - QualityInspection 30 - Unrestricted Independent of Batch Status.
Batch Status *	Object link to Batch and its status	---	R	Batch of the payload.
Batch Expiry Date *	Object link to Batch and its expiry date	---	R	Batch of the payload.
Active TO * [Identifier]	String	---	R	Transport order identifier, only if a TO in the Created or Started statuses is available for the LU / Payload Only subplot.
Permanent LU	Boolean	Yes / No	R	LU of the payload is a permanent LU.
Res. *	Numeric	Integer	R	Count of reservations for the payload.

LEGEND

*=default visibility in the editor's list

R=read-only

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

2.3.2 Stock Records Operations (WH0100.03.02+)

Besides the common operations for Filters (WH0100.01.01) ([GID-2789112](#)), Export Data (WH0100.01.02) ([GID-2789114](#)), Refresh Data (WH0100.01.04) ([GID-2789116](#)), and View Data (WH0100.01.05) ([GID-2789117](#)), this editor provides the following additional operations:

- create a transport order ([GID-2789128](#)),
- adjust the quantity of a payload ([GID-2789129](#)),
- change the status of a subplot ([GID-2789135](#)),
- print a logistic unit label ([GID-2789131](#)),
- print a subplot label ([GID-2789132](#)),
- display current cold chain data of a subplot ([GID-3453925](#)),
- correct inconsistent payload or logistic unit data ([GID-2789133](#)).

2.3.2.1 GID-2789128 CREATE A TRANSPORT ORDER (WH0100.03.02.01)

For a logistic unit or a LU subplot of the **Payload Only** category, transport orders can be created. This is only possible as long as there is no active transport order (**Created** or **Started**) for the logistic unit itself or for any of its parent or child logistic units. In all other cases, the operation button is insensitive.

The dialog shows the following data:

- [Transport order] Identifier, read-only
- Logistic Unit [Identifier] (in case the TO was created for a LU of the **Payload Only** category, it shows the caption Sublot and as data the subplot identifier), read-only
- Start Storage Unit [Name], read-only, current storage unit of LU
- Start Storage Zone [Name], read-only, current storage zone of LU
- Start Area [Name], read-only, current area of LU
- Start Site [Name], read-only, current site of LU
- [Planned] Target Storage Unit [Name], mandatory
- [Planned] Target Storage Zone [Name], mandatory
- [Planned] Target Area [Name], mandatory
- [Planned] Target Site [Name], mandatory
- Initiator, optional
- Initiator Type, optional
- Priority, mandatory, default: Medium
- Planned Finish Time, optional
- Comment, optional

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A planned target is suggested with the Target Suggestion Based on Part Configuration (WH0300.01.02) function ([GID-2789334](#)).

The suggested target can be changed. A manual selection of the planned target supports the user as follows:

- In case a lower level is selected for the topology, all related higher levels are set automatically.
Example: In case a storage zone is selected, the related area and site are set automatically)
- In case a higher level is selected for the topology, for any lower level, only the matching data is available for selection.

With the **Create** button the Transport Order Creation Check (WH0300.01.03) function ([GID-2789335](#)) is performed. If no error occurs, the **Expected Number of LUs** of the planned target storage unit is increased by 1, if specified, and the transport order is created according to the data entries in the dialog. The transport order **Status** is set to **Created**, the **Creation Time** is set to the current time, and the **Creation User** is set to the logged-in user.

The following error cases can occur:

- In case a transport order is created without providing all mandatory data, the user is informed with an error message and the action is not completed.
- In case a transport order is created with an invalid value, the user is informed with an error message and the action is not completed.
- In case a transport order is created and the Transport Order Creation Check (WH0300.01.03) function ([GID-2789335](#)) fails, the user is informed with an error message and the action is not completed.

Attribute	Value
MES-Business: GxP relevance	No
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	Yes

2.3.2.2 GID-2789129 ADJUST THE QUANTITY OF A PAYLOAD (WH0100.03.02.02)

As an operator, I want to adapt a payload quantity at a Warehouse Management client, so that the quantity reflects the reality.

Since a quantity change can cause financial changes at an ERP system, predefined reasons and cost centers shall be available for selection by the operator and the system shall document the change in the transaction history.

The **Adjust Quantity** button is enabled if a single row with a payload is selected.

The dialog shows the following data:

- Logistic Unit [Identifier], read-only
- Part [Name], read-only
- Part Description, read-only

- Batch, read-only
- Sublot, read-only
- Sublot Status, read-only
- Quantity, read-only
- New Quantity, mandatory
- Purpose, mandatory (If the option list contains only one value, the value is preselected.)
- Transaction Purpose Details, mandatory
- Transaction Purpose Reason, mandatory
- Cost Center, optional
- Comment, optional

The availability of transaction purpose details and reasons depend on the selected purpose. The purposes are defined in the extensible **WH_AdjustPayloadQuantityPurpose** option list. These option list elements must be available in the extensible **WH_TransactionPurpose** option list.

The following error case can occur:

- In case the new quantity is equal to the old quantity, the user is informed with an error message and the action is not completed.
- In case the payload data is changed by another operation, the user is informed with an error message and the action is not completed.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	Yes

2.3.2.3 GID-2789130 ADJUST PAYLOAD QUANTITY SIGNATURE (WH0100.03.02.02.01)

To confirm the payload quantity change, the system shall require a performer signature defined with the WH_adjustLogisticUnitPayloadQuantity access privilege. The signer, timestamp, and a provided comment are stored with the transaction history data set for the payload change.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	Yes

2.3.2.4 GID-2789131 PRINT A LOGISTIC UNIT LABEL (WH0100.03.02.03)

In case a logistic unit of a category other than **Payload Only** is selected, a standard label for the logistic unit can be printed on a selectable printer according to the label design configured in Warehouse Management.

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Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	Yes

2.3.2.5 GID-2789132 PRINT A SUBLot LABEL (WH0100.03.02.04)

In case a payload of the **Sublot** type is selected, a standard label for the subplot can be printed on a selectable printer according to the label design configured in Warehouse Management.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	Yes

2.3.2.6 GID-2789133 CORRECT DATA (WH0100.03.02.05)

A supervisor needs the possibility to correct inconsistent stock data. In case of the integration scenario with an RA MES, it can happen that the MES consumes and produces stock items even when the "MES to Warehouse" interface is down or communication errors occur between MES and Warehouse.

The operation allows to solve following data inconsistencies:

- subplot quantity is unequal to its payload quantity ([GID-2789050](#)),
- subplot without payload ([GID-2789051](#)),
- subplot status change that is not visible in the transaction history ([GID-2789054](#)),
- PharmaSuite MES subplot storage location is unequal to the logistic unit's storage unit ([GID-2789052](#)),
- payload with logically deleted subplot in PharmaSuite ([GID-2789053](#)).

After solving a data inconsistency, the related transaction history entry documents the following additional data:

- Purpose: Data Correction
- Transaction Purpose Details: localized value of the **WH_DataCorrectionPurpose** option list
- Comment: correction comment provided by the user
- Signature data (if configured)

The dialog shows one line for each existing inconsistent data set with the following columns:

- Selection, only selected lines are processed
- Purpose Detail, type of data inconsistency that must be resolved (**WH_DataCorrectionPurpose** option list). Automatically set by the system.
- Logistic Unit, involved logistic unit
- Payload Only, yes in case the payload resides on a LU of the **Payload Only** category

- Sublot, involved subplot (with inconsistent data)
- Sublot Quantity [UoM], current quantity set in the subplot data
- Payload Quantity [UoM], current quantity set in the payload data
- Storage Location, current storage location set in the subplot data
- Storage Unit, current storage unit set in the logistic unit data
- Sublot Status, current subplot status (filled only for the **Missing Sublot Status in History** purpose)
- History Sublot Status (filled only for the **Missing Sublot Status in History** purpose)

The data sets to be shown can be restricted by selection criteria for the logistic unit, **Payload Only** category, subplot, storage location, storage unit, and purpose detail. Below the grid, a mandatory correction comment must be provided.

After the user has provided a correction comment, the process can be started with the **Correct Data** button. The selected lines in the grid are processed according to their type of data inconsistency:

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	Yes

2.3.2.6.1 GID-2789050 SUBLOT QUANTITY IS UNEQUAL TO ITS PAYLOAD QUANTITY (WH0100.03.02.05.01)

The payload is updated with the quantity of the subplot.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

2.3.2.6.2 GID-2789051 SUBLOT WITHOUT PAYLOAD (WH0100.03.02.05.02)

For the subplot, a payload is created with the same data. For the payload, a temporary logistic unit of the **Payload Only** category is created. In case the storage location of the subplot is not available as storage unit in Warehouse Management, the correction fails. The system shows an error message to inform the user to add the missing storage unit first.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

2.3.2.6.3 GID-2789052 MES SUBLOT STORAGE LOCATION IS UNEQUAL TO THE LOGISTIC UNIT'S STORAGE UNIT (WH0100.03.02.05.03)

The logistic unit with the payload of the subplot is moved to the storage unit that corresponds to the MES storage location of the subplot.

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Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

2.3.2.6.4 GID-2789053 PAYLOAD WITH LOGICALLY DELETED SUBLot (WH0100.03.02.05.04)

In case this payload is the last payload of a temporary logistic unit, the payload and the logistic unit are deleted.

In case this payload is the last payload of a logistic unit of the Load Control category, the TOTAL_UNLOAD trigger is sent to the MES. Only a successful reply allows to delete the payload.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

2.3.2.6.5 GID-2789054 MISSING SUBLot STATUS CHANGE IN TRANSACTION HISTORY (WH0100.03.02.05.06)

The system creates a transaction history record for the subplot with the following data:

- Sublot Payload as Transaction Object Type,
- Status Changed as Transaction Type,
- part and batch of the subplot
- and the last in the transaction history documented new subplot status as old subplot status, and
- the current subplot status as the new subplot status.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

2.3.2.6.6 GID-2789134 CORRECT DATA SIGNATURE (WH0100.03.02.05.05)

To confirm the data correction, the system shall require a performer signature defined with the WH_editDataCorrectionRecord access privilege. The signer, timestamp, and a provided comment are stored with all the transaction history data sets created for the data correction.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	Yes

2.3.2.7 GID-2789135 CHANGE SUBLot STATUS (WH0100.03.02.06)

As a quality assurance person, I want to adapt the subplot status according to analysis results. The subplot status shall be represented at least with one of the three statuses **Blocked**, **Quality Inspection**, or **Unrestricted**.

As a quality assurance person, I want to mark a subplot of a batch as not usable even if other sublots of the batch have no restrictions.

The **Change SL Status** button is enabled if a single row with a payload of the subplot type is selected.

The dialog shows the following data:

- Logistic Unit [Identifier], read-only
- Part [Name], read-only
- Part Description, read-only
- Batch, read-only
- Sublot, read-only
- Sublot Status, read only
- New Sublot Status, allows any value of the **SublotStatus** choice list. It is independent of the batch status and allows to remove an existing subplot status (set it to null).
- Quantity, read-only
- Purpose, mandatory (If the choice list contains only one value, the value is preselected.)
- Transaction Purpose Details, mandatory
- Transaction Purpose Reason, mandatory
- Comment, optional

The availability of transaction purpose details and reasons depends on the selected purpose. The purposes are defined in the extensible **WH_ChangeSublotStatusPurpose** choice list. These choice list elements must be available in the extensible **WH_TransactionPurpose** option list.

The subplot status change done with this dialog shall be documented in the transaction history with the **Status Change** transaction type and the **Change Sublot Status** transaction process.

The following error cases can occur:

- In case the new status is equal to the old status, the user is informed with an error message and the action is not completed.
- In case the subplot status was changed by another operation and differed from the shown value, the user is informed with an error message and the action is not completed.

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Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	Yes

2.3.2.8 GID-2789136 CHANGE SUBLot STATUS SIGNATURE (WH0100.03.02.06.01)

To confirm the subplot status change, the system shall require a performer signature defined with the WH_changeSublotStatus access privilege. The signer, timestamp, and a provided comment are stored with the transaction history data set for the subplot change.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	Yes

2.3.2.9 GID-3453925 DISPLAY CURRENT COLD CHAIN DATA OF A SUBLot

In case a selected subplot has temperature range counters because the part requires to track the stay times at specific temperatures, a dialog is available to display the following data as a read-only list of these counters:

- Temperature Range
([Min .. Max])
- Warning Threshold
- Maximum Threshold
- Cumulated Time
(seconds are rounded up to next minute) if **Running=No**, the **Cumulated Time** value of last Cold Chain History data set; if **Running=Yes**, the **Cumulated Time** value of last Cold Chain History data set + the time since **Timestamp (Entered)** of this data set
- Remaining Time
(Maximum Threshold - Cumulated Time)
- Running
No: counter not active; **Yes**: Open Cold Chain History data set exists with empty **Timestamp (Left)**

The dialog offers to browse through the stock records with a **Previous** and **Next** button.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

2.3.2.10 GID-3589266 CORRECT TITR

A supervisor needs the possibility to correct TITR values, in case they are too high or too low due to either unbooked or wrongly booked subplot data. To make this correction, a **Correct TITR** button is available on the **Stock Records** editor. The button is sensitive only when a subplot is selected, its material is a CCT material and the logged in user has the access privilege 'WH_correctTITRRecord'. On clicking the **Correct TITR** button, a dialog is displayed with the following fields

Sublot data, all read-only, repeated for each Temperature range available

- Sublot
- Temperature Range ([Min .. Max])
- Cumulated Time
- Part [Name]
- Batch

Input field

- Temperature Range ([Min .. Max])
- Time Difference, for each Temperature Range assigned to the subplot. This is an input field for the time difference to be booked. Each **Time Difference** field can also be filled using the Duration editor. See [\(GID-3623443\)](#) for details on booking time difference. Time difference can be entered as negative or positive value.

Buttons

- Cancel
- Save

The system will request a WH_EditTITRCorrectionRecord signature for TR counter updates.

After the changes are saved, updated details will be available in the [\(GID-3393786\)](#) editor.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

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2.3.3 GID-2789137 Stock Records Access Privileges (WH0100.03.03)

For stock records, two basic access privileges are available:

- WH_viewStockRecords
- WH_exportStockRecords

For specific operations, additional access privileges are available:

- WH_adjustLogisticUnitPayloadQuantity
- WH_printLogisticUnitLabel
- WH_printSublotLabel
- WH_editDataCorrectionRecord
- WH_createTransportOrder
- WH_changeSublotStatus

Based on the privileges, the corresponding buttons are enabled or disabled.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	Yes

2.4 Part Class Editor Extension

The part class editor extension allows to assign users to a part class.

As a quality assurance responsible for parts of a part class I want to be informed about certain events by means of emails (e.g. if a TITR threshold is reached).

2.4.1 GID-3556823 Part Class Attributes

Name	Data type	Format or Length	Input	Comment
CCT Inheritance Rule*	Choice List	---	0	Extendable ColdChainTrackingInheritanceRule choice list with the following values: No Inheritance, Worst Case

LEGEND

*=default visibility in the editor's list

M=mandatory; R=read-only; I=insert only and mandatory; O=optional

Attribute	Value
MES-Business: GxP relevance	No
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	Yes

2.4.2 *GID-3308307 Part Class Assignment Attributes*

Name	Data type	Format or Length	Input	Comment
Users	String	---	R	List of assigned User Login Names

LEGEND

R=read-only

Attribute	Value
MES-Business: GxP relevance	No
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

2.4.3 *Part Class Operations*

This editor extension provides the following additional operations:

- assign parts [\(GID-3540690\)](#)
- assign users [\(GID-3308332\)](#)
- export [\(GID-3308340\)](#)
- import [\(GID-3308355\)](#)

2.4.3.1 GID-3540690 ASSIGN PARTS TO A PART CLASS

The WXF Part Class Editor permits assigning one or more parts to a part class.

The following error case can additionally occur within Warehouse Management:

- In case the assignment has the result that a part with its part classes has more than one temperature range with the same minimum and maximum temperature assigned, the user is informed with an error message and the action is not completed.
- In the context of the **CCT Inheritance Rule** [\(GID-3556823\)](#), a check is available to avoid having different CCT inheritance rules applicable to a part. If during assignment of a part class, the CCT

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inheritance rule of the part class does not match the CCT inheritance rule of the part class(es) already assigned to the part, the user is informed with an error message and the action is not completed.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

2.4.3.2 GID-3308332 ASSIGN USERS TO A PART CLASS

Users can be assigned to a part class with the following dialog:

- A list of not assigned users.
- A list of assigned users.
- The list of not assigned users can be filtered by user name and description.
- The list of not assigned users can be sorted by user name and description.

One or multiple users can be selected in one list and moved to the other list.

The **Save** Button shall make the changed assignments persistent.

TIP

Deleting a part class, deletes the assignment between a user and this part class automatically.

Attribute	Value
MES-Business: GxP relevance	No
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

2.4.3.3 GID-3579449 EDIT PART CLASS

The following error case can additionally occur within Warehouse Management:

- If the **CCT Inheritance Rule** [\(GID-3556823\)](#) for an existing part class, which has parts assigned, is updated, then on saving, the user is informed with an error message that the changed CCT inheritance rule of the part class is conflicting with the rule definitions for one or more assigned parts. The action is not completed.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

2.4.3.4 GID-3308340 EXPORT OF PART CLASSES

The user assignments shall be visible in the export of part classes.

Attribute	Value
MES-Business: GxP relevance	No
MES-Business: Business Impact	Medium
MES-Compliance: 21 CFR Part 11 relevance	No

2.4.3.5 GID-3308355 IMPORT OF PART CLASSES

The assignment of an existing user to a part class shall be added during import if such an assignment is available in the import file.

The assignment of a non-existing user to a part class shall not cause any user assignments to this part class during import if such an assignment is available in the import file.

If an existing user to part class assignment is not available in the import file, even though the part class is available in the import file, the assignment shall be deleted.

Attribute	Value
MES-Business: GxP relevance	No
MES-Business: Business Impact	Medium
MES-Compliance: 21 CFR Part 11 relevance	No

2.4.4 GID-3308357 Part Class Access Privileges

For the user to part class assignment an additional access privilege is available:

- assignUserToPartClass

Based on the privilege, the corresponding button is enabled or disabled.

Attribute	Value
MES-Business: GxP relevance	No
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

2.5 Part Editor (WH0100.04+)

The part editor allows to define new, view, change, and delete part master data. Additionally, storage-specific configurations can be defined with this editor (e.g. a default storage unit for a part).

As a warehouse office worker, I want to provide new parts that can be stored at the warehouse.

As a warehouse office worker, I want to be able to update part master data.

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As a warehouse office worker, I want to be able to configure a part-specific default target suggestion search strategy for a put-away, e.g. by a defined sequence or the stored quantity.

As a warehouse office worker, I want to be able to configure part-specific default target suggestions on each topology level (site, area, storage zone, storage unit).

As quality assurance person, I want to be able to define a default batch status per part that is initially used during batch creation processes in Warehouse Management.

As quality assurance person or by ERP interface, I want to define if a batch needs to be sampled during goods receipt and which kind of sampling type needs to be executed (e.g. Reference Sample, Visual Check, Sterility Check).

2.5.1 GID-2789139 Part Attributes (WH0100.04.01)

Name	Data type	Format or Length	Input	Comment
Name *	String	60	I	---
Revision *	String	10	I	---
Description *	String	255	O	---
UoM *	Object link to Unit of measure	---	I	---
Sampling Required	Boolean	Yes / No	O	Default: No
Sampling Type	Option list	---	O	WH_SamplingType, extensible, elements: ReferenceSample, VisualCheck, SterilityCheck
Default Batch Status	FSM	---	O	Quarantined, Released, Blocked Default status at FSM: Quarantined
Apply for Picking	Boolean	Yes / No	O	Default: No
Default Sublot Status	Choice list	Element of SublotStatus choice list	O	Allows empty selection.

LEGEND

*=default visibility in the editor's list

M=mandatory; R=read-only; I=insert only and mandatory; O=optional

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

2.5.1.1 GID-2789140 PART ASSIGNMENT ATTRIBUTES (WH0100.04.01.01)

Name	Data type	Format or Length	Input	Comment
Part Classes	String	---	R	List of assigned Part Class Names
Storage Attributes	String	---	R	List of assigned Storage Attribute Names with Value
Temperature Ranges	String	([min. temperature .. max. temperature], Warning: warning threshold, Maximum: maximum threshold)	R	List of assigned Temperature Ranges (Part)

LEGEND

R=read-only

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

2.5.2 Part Operations (WH0100.04.02+)

Besides the common operations for Filters (WH0100.01.01) ([GID-2789112](#)), Export Data (WH0100.01.02) ([GID-2789114](#)), Import Data (WH0100.01.03) ([GID-2789115](#)), Refresh Data

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(WH0100.01.04) ([GID-2789116](#)), and View Data (WH0100.01.05) ([GID-2789117](#)), this editor provides the following additional operations:

- add a part ([GID-2789142](#)),
- edit a part ([GID-2789143](#)),
- delete a part ([GID-2789144](#)),
- define the storage configuration of a part ([GID-2789145](#)).

2.5.2.1 GID-2789142 ADD A PART (WH0100.04.02.01)

To create a new part, the following dialog must be saved:

- [Part] Name, unique with Revision
- [Part] Revision, unique with Name
- [Part] Description
- UoM
- Sampling Required
- Sampling Type
- Default Batch Status
- Default Sublot Status
- Apply for Picking

In case the MES Integration is enabled, a part cannot be added here.

The following error cases can occur:

- In case a part is created without providing all mandatory data, the user is informed with an error message and the action is not completed.
- In case a part is created with an invalid value (e.g. non-existing UoM), the user is informed with an error message and the action is not completed.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

2.5.2.2 GID-2789143 EDIT A PART (WH0100.04.02.02)

The master data of a selected part can be changed in the following dialog:

- [Part] Name, read-only
- [Part] Revision, read-only
- [Part] Description

- UoM, read-only
- Sampling Required
- Sampling Type
- Default Batch Status
- Default Sublot Status
- Apply for Picking

In case the MES Integration is enabled, the master data of a part cannot be changed here.

The following error cases can occur:

- Since only the optional description can be changed, there are no error cases.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

2.5.2.3 GID-2789144 DELETE A PART (WH0100.04.02.03)

The selected part can be deleted. The user must confirm the deletion of the part.

In case the MES Integration is enabled, the part cannot be deleted here.

The following error cases can occur:

- In case a part shall be deleted that is referenced by another object (e.g. goods receipt or payload), the user is informed with an error message and the action is not completed.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

2.5.2.4 GID-2789145 DEFINE THE STORAGE CONFIGURATION OF A PART (WH0100.04.02.04)

The storage configuration of a selected part can be changed with the following dialog:

- Storage Strategy, **WH_StorageStrategy** option list, mandatory, default: By Sequence
- Storage Assignment Level, **WH_StorageLevel** option list, if the selected list is not empty, it is prefilled and read-only showing the level of the selected list elements
- Assignment
- List of **Available** elements
- List of **Selected** elements
- **Available** elements are limited to the selected Storage Assignment Level.
- **Available** elements can be filtered by name and description.

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- Multi-selection (marking) of list elements is supported.
- Marked elements can be moved from the **Available** list to the **Selected** list and the other way round.
- The sequence of the **Selected** elements can be changed.
- Only if the **Selected** list is empty, can the Storage Assignment Level be changed.

The following error cases can occur:

- In case the configuration is saved without selecting a storage level, the user is informed with an error message and the action is not completed.

Attribute	Value
MES-Business: GxP relevance	No
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

2.5.3 **GID-2789146 Part Access Privileges (WH0100.04.03)**

For parts, three basic access privileges are available:

- viewPart
- editPart (required for import / export)
- deletePart

For specific operations, additional access privileges are available:

- WH_savePartStorageConfiguration

Based on the privileges, the corresponding buttons are enabled or disabled.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	Yes

2.6 Storage Unit Editor (WH0100.05+)

The storage unit editor allows to define new, view, change, and delete storage units as components of the warehouse topology.

As a warehouse administrator, I want to set up and update the warehouse topology including storage units assigned to a storage zone and optionally to a work center.

As a warehouse administrator, I want to be able to block a storage unit from further use in case of damage, contamination, or blocked access of a storage unit.

As a warehouse administrator, I want to be able to configure the maximum number of logistic units that can be stored at a storage unit.

2.6.1 GID-2789148 Storage Unit Attributes (WH0100.05.01)

Name	Data type	Format or Length	Input	Comment
Name *	String	64	I	---
Description *	String	255	O	---
Storage Zone *	Object link to Storage zone	---	M	---
Barcode *	String	80	M	---
Maximum Number of LUs *	Integer	[1 .. 999] or empty	O	---
Current Number of LUs *	Integer	[0 .. ?]	R	Calculated by the system.
Number of Expected LUs *	Integer	---	R	Calculated by the system.
Accessible *	Boolean	---	M	Default: true
Work Center *	Object link to a Work center	---	O	If only one storage unit is linked to the work center, the link can be used to find the storage unit of a payload created within a workflow.

LEGEND

*=default visibility in the editor's list

M=mandatory; R=read-only; I=insert only and mandatory; O=optional

Attribute	Value
MES-Business: GxP relevance	No
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

2.6.1.1 GID-2789149 STORAGE UNIT ASSIGNMENT ATTRIBUTES (WH0100.05.01.01)

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Name	Data type	Format or Length	Input	Comment
Storage Attributes	String	---	R	List of assigned Storage Attribute Names with Value
Storage Unit Classes	String	---	R	List of assigned Storage Unit Class Names
[Temperature Range of assigned Storage Unit Class]	String	[min. temperature .. max. temperature]	R	Temperature range is displayed behind the assigned Storage Unit Class name.

LEGEND

R=read-only

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	Medium
MES-Compliance: 21 CFR Part 11 relevance	No

2.6.2 Storage Unit Operations (WH0100.05.02+)

Besides the common operations for Filters (WH0100.01.01) ([GID-2789112](#)), Export Data (WH0100.01.02) ([GID-2789114](#)), Import Data (WH0100.01.03) ([GID-2789115](#)), Refresh Data (WH0100.01.04) ([GID-2789116](#)), and View Data (WH0100.01.05) ([GID-2789117](#)), this editor provides the following additional operations:

- add a storage unit ([GID-2789151](#)),
- edit a storage unit ([GID-2789152](#)),
- delete a storage unit ([GID-2789153](#)),
- print a storage unit label ([GID-2789154](#)).

2.6.2.1 GID-2789151 ADD A STORAGE UNIT (WH0100.05.02.01)

To create a new storage unit, the following dialog must be saved:

- [Storage Unit] Name, unique
- [Storage Unit] Description
- Storage Zone
- [Storage Unit] Barcode, unique

- [Storage Unit] Maximum Number of LUs
- [Storage Unit] Current Number of LUs
- [Storage Unit] Number of Expected LUs
- [Storage Unit] Accessible
- Work Center

The following error cases can occur:

- In case a storage unit is created without providing all mandatory data, the user is informed with an error message and the action is not completed.
- In case a storage unit is created with an invalid value, the user is informed with an error message and the action is not completed.

Attribute	Value
MES-Business: GxP relevance	No
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

2.6.2.2 GID-2789152 EDIT A STORAGE UNIT (WH0100.05.02.02)

The master data of a selected storage unit can be changed in the following dialog:

- [Storage Unit] Name, read-only
- [Storage Unit] Description
- Storage Zone
- [Storage Unit] Barcode, unique
- [Storage Unit] Maximum Number of LUs, cannot be lower than the sum of **Current Number of LUs + Number of Expected LUs**
- [Storage Unit] Current Number of LUs, read-only
- [Storage Unit] Number of Expected LUs, read-only
- [Storage Unit] Accessible
- Work Center

The following error cases can occur:

- In case a storage unit is saved without providing all mandatory data, the user is informed with an error message and the action is not completed.
- In case a storage unit is saved with an invalid value, the user is informed with an error message and the action is not completed.

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Attribute	Value
MES-Business: GxP relevance	No
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

2.6.2.3 GID-2789153 DELETE A STORAGE UNIT (WH0100.05.02.03)

The selected storage unit can be deleted. The user must confirm the deletion of the storage unit.

The following error cases can occur:

- In case a storage unit shall be deleted that is referenced by another object (e.g. logistic unit), the user is informed with an error message and the action is not completed.

Attribute	Value
MES-Business: GxP relevance	No
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

2.6.2.4 GID-2789154 PRINT A STORAGE UNIT LABEL (WH0100.05.02.04)

For selected storage unit(s), a label can be printed on a selectable printer according to the label design configured in Warehouse Management.

Attribute	Value
MES-Business: GxP relevance	No
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

2.6.3 GID-2789155 Storage Unit Access Privileges (WH0100.05.03)

For storage units, three basic access privileges are available:

- WH_viewStorageUnit (allows label printing)
- WH_editStorageUnit (required for import / export)
- WH_deleteStorageUnit

Based on the privileges, the corresponding buttons are enabled or disabled.

Attribute	Value
MES-Business: GxP relevance	No
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	Yes

2.7 Storage Attribute Editor (WH0100.06+)

As quality assurance person, I want to configure my parts and storage units in the office so that transport order target suggestions can exclude storage units that are not allowed.

As quality assurance person, I want to configure my parts and storage units in the office so that movements check the new target storage unit before a payload is booked to it or payloads can only be created at storage units that have the characteristics required by the part.

Additionally, the storage units should be configurable to only allow storing of stock with a specific batch and/or subplot status.

It should be possible to define attributes with free names and values (e.g.: cooled, psychotropics, toxic, inflammable (hazardous goods), acid, liquid).

These attributes shall be assignable to a part (class) as requirements and to a storage unit (class) to specify its characteristics. All the requirements of a part need to be fulfilled by the storage unit if it should be allowed to store the part there. The value of the characteristics defined for the storage unit must be equal or higher than the value of the storage attribute assigned to the part.

To use the available storage units in an optimized way for a target storage unit suggestion, the storage unit with the lowest cost is determined by means of the storage attribute values. The difference between all requirement values and their storage attribute characteristics is calculated as cost.

At movement or target suggestion all part requirements, subplot statuses, and batch statuses of all payloads of the root logistic unit and its children needs to be collected.

- Only those storage units are suggested as target that fulfill all the part, subplot status, and batch status requirements.
- Movement to a storage unit is only allowed if its characteristics fulfill all the part, subplot status, and batch status requirements.

2.7.1 GID-2789157 Storage Attribute Attributes (WH0100.06.01)

Name	Data type	Format or Length	Input	Comment
Name *	String	64	I	Unique together with Value
Description *	String	255	O	---
Type *	Option list	---	R	WH_StorageAttributeType, fixed, elements: Part, BatchStatus, SublotStatus
Value *	Integer	[-9999 .. 9999]	M	---

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LEGEND

*=default visibility in the editor's list

M=mandatory; R=read-only; I=insert only and mandatory; O=optional

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

2.7.1.1 GID-2789158 STORAGE ATTRIBUTE ASSIGNMENT ATTRIBUTES (WH0100.06.01.01)

Name	Data type	Format or Length	Input	Comment
Part Classes	String	---	R	List of assigned Part Class Names
Storage Unit Classes	String	---	R	List of assigned Storage Unit Class Names

LEGEND

R=read-only

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

2.7.2 Storage Attribute Operations (WH0100.06.02+)

Besides the common operations for Filters (WH0100.01.01) ([GID-2789112](#)), Export Data (WH0100.01.02) ([GID-2789114](#)), Import Data (WH0100.01.03) ([GID-2789115](#)), Refresh Data (WH0100.01.04) ([GID-2789116](#)), and View Data (WH0100.01.05) ([GID-2789117](#)), this editor provides the following additional operations:

- add a storage attribute ([GID-2789160](#)),
- edit a storage attribute ([GID-2789161](#)),
- delete a storage attribute ([GID-2789162](#)),
- assign part classes ([GID-2789163](#)),
- assign storage unit classes ([GID-2789164](#)).

2.7.2.1 GID-2789160 ADD A STORAGE ATTRIBUTE (WH0100.06.02.01)

To create a new storage attribute, the following dialog must be saved:

- Name, unique with value
- Description
- Type, read-only, prefilled with **Part**.
- Value

The following error cases can occur:

- In case a storage attribute is created without providing all mandatory data, the user is informed with an error message and the action is not completed.
- In case a storage attribute is created with an invalid value (unique value violation), the user is informed with an error message and the action is not completed.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

2.7.2.2 GID-2789161 EDIT A STORAGE ATTRIBUTE (WH0100.06.02.02)

Only available for storage attributes of the **Part** type.

The data of a selected storage attribute can be changed in the following dialog:

- Name, read-only
- Description
- Type, read-only
- Value

The following error cases can occur:

- In case a storage attribute is saved without providing all mandatory data, the user is informed with an error message and the action is not completed.
- In case a storage attribute is saved with an invalid value (unique value violation), the user is informed with an error message and the action is not completed.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

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2.7.2.3 GID-2789162 DELETE A STORAGE ATTRIBUTE (WH0100.06.02.03)

Only available for storage attributes of the **Part** type.

The selected storage attribute can be deleted. The user must confirm the deletion of the storage attribute.

The following error cases can occur:

- In case a storage attribute shall be deleted that is assigned to a part class or a storage unit class, the user is informed with an error message and the action is not completed.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

2.7.2.4 GID-2789163 ASSIGN PART CLASSES TO A STORAGE ATTRIBUTE (WH0100.06.02.04)

Part classes can be assigned to a storage attribute with the following dialog:

- A list of selectable part classes. Already assigned part classes are flagged as selected.
- The list of selectable part classes can be filtered by part class name and description.
- The list of selectable part classes can be sorted, controlled by the column header fields of the list.

Part classes shall not be assignable to storage attributes of the **Sublot Status** type or of the **Batch Status** type.

The following error cases can occur:

- In case the assignment has the result that more than one storage attribute with the same name but different values is assigned to a part class, the user is informed with an error message and the action is not completed.
- In case the assignment has the result that a part with its part classes has more than one storage attribute with the same name but different values assigned, the user is informed with an error message and the action is not completed.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

2.7.2.5 GID-2789164 ASSIGN STORAGE UNIT CLASSES TO A STORAGE ATTRIBUTE (WH0100.06.02.05)

Storage unit classes can be assigned to a storage attribute with the following dialog:

- A list of selectable storage unit classes. Already assigned storage unit classes are flagged as selected.
- The list of selectable storage unit classes can be filtered by storage unit class name and description.
- The list of selectable storage unit classes can be sorted, controlled by the column header fields of the list.

The following error cases can occur:

- In case the assignment has the result that more than one storage attribute with the same name but different values is assigned to a storage unit class, the user is informed with an error message and the action is not completed.
- In case the assignment has the result that a storage unit with its storage unit classes has more than one storage attribute with the same name but different values assigned, the user is informed with an error message and the action is not completed.

TIP

Storage attributes can be removed from a storage unit class, independent of the part configuration of the payloads stored in assigned storage units. Even though it is possible to move away those payloads that have a storage attribute conflict due to the parts they contain, it is recommended to do this before changing the assignment of storage attributes to the storage unit's class.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

2.7.3 GID-2789165 Storage Attribute Access Privileges (WH0100.06.03)

For storage attributes, six basic access privileges are available:

- WH_viewStorageAttribute
- WH_createStorageAttribute
- WH_editStorageAttribute
- WH_deleteStorageAttribute
- WH_exportStorageAttribute
- WH_importStorageAttribute

For specific operations, additional access privileges are available:

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- WH_assignPartClassesToStorageAttribute
- WH_assignStorageUnitClassesToStorageAttribute

Based on the privileges, the corresponding buttons are enabled or disabled.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	Yes

2.8 Storage Unit Class Editor (WH0100.07+)

The storage unit class editor allows to define new storage unit class data and view, change, and delete existing storage unit class data.

Storage units with the same characteristics can be grouped by assigning them to the same storage unit class.

As a warehouse supervisor I want to be able to define one temperature range for a storage unit (class) that represents the possible temperatures.

2.8.1 GID-2789167 Storage Unit Class Attributes (WH0100.07.01)

Name	Data type	Format or Length	Input	Comment
Name *	String	64	I	Unique
Description *	String	255	O	---
Category *	String	50	O	---
Min. Temperature	Number	Max. 1 fractional digit	O	Lowest allowed value -273.1 °C Highest allowed value 999.0 °C Mandatory in case Max. Temperature is set.
Max. Temperature	Number	Max. 1 fractional digit	O	Lowest allowed value -273.1 °C Highest allowed value 999.0 °C Mandatory in case Min. Temperature is set.

LEGEND

*=default visibility in the editor's list

I=insert only and mandatory; O=optional

The UoM for all values of the temperature ranges can be set centrally as degrees Celsius (°C) or degrees Fahrenheit (°F) in the global settings of Warehouse Administration.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

2.8.1.1 GID-2789168 STORAGE UNIT ASSIGNMENT ATTRIBUTES (WH0100.07.01.01)

Name	Data type	Format or Length	Input	Comment
Storage Unit Name	Object link to Storage Unit	---	R	---
Description	Object link to Storage Unit	---	R	---
Storage Zone [Name]	Object link to Storage Zone	---	R	---
Area [Name]	Object link to Area	---	R	---

LEGEND

R=read-only

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

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2.8.1.2 GID-2789169 STORAGE ATTRIBUTE ASSIGNMENT ATTRIBUTES (WH0100.07.01.02)

Name	Data type	Format or Length	Input	Comment
Storage Attributes	String	---	R	List of assigned Storage Attribute Names with Value

LEGEND

R=read-only

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

2.8.2 Storage Unit Class Operations (WH0100.07.02+)

Besides the common operations for Filters (WH0100.01.01) ([GID-2789112](#)), Export Data (WH0100.01.02) ([GID-2789114](#)), Import Data (WH0100.01.03) ([GID-2789115](#)), Refresh Data (WH0100.01.04) ([GID-2789116](#)), and View Data (WH0100.01.05) ([GID-2789117](#)), this editor provides the following additional operations:

- add a storage unit class ([GID-2789171](#)),
- edit a storage unit class ([GID-2789172](#)),
- delete a storage unit class ([GID-2789173](#)),
- assign storage units ([GID-2789174](#)),
- assign storage attributes ([GID-2789175](#)).

2.8.2.1 GID-2789171 ADD A STORAGE UNIT CLASS (WH0100.07.02.01)

To create a new storage unit class, the following dialog must be saved:

- Name, unique
- Description
- Category
- Min. Temperature
- Max. Temperature

The following error cases can occur:

- In case a storage unit class is created without providing all mandatory data, the user is informed with an error message and the action is not completed.

- In case a storage unit class is created with a non-unique name, the user is informed with an error message and the action is not completed.
- In case only the minimum temperature or only the maximum temperature is defined, the user is informed with an error message and the action is not completed.
- In case the minimum temperature or the maximum temperature is defined with a value outside of the allowed range, the user is informed with an error message and the action is not completed.
- In case the minimum temperature is defined higher than the maximum temperature, the user is informed with an error message and the action is not completed.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

2.8.2.2 GID-2789172 EDIT A STORAGE UNIT CLASS (WH0100.07.02.02)

The data of a selected storage unit class can be changed in the following dialog:

- Name, read-only
- Description
- Category
- Min. Temperature
- Max. Temperature

The following error cases can occur:

- In case only the minimum temperature or the maximum temperature is defined, the user is informed with an error message and the action is not completed.
- In case the minimum temperature or only the maximum temperature is defined with a value outside of the allowed range, the user is informed with an error message and the action is not completed.
- In case the minimum temperature is defined higher than the maximum temperature, the user is informed with an error message and the action is not completed.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

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2.8.2.3 GID-2789173 DELETE A STORAGE UNIT CLASS (WH0100.07.02.03)

The selected storage unit class can be deleted. The user must confirm the deletion of the storage unit class.

The following error cases can occur:

- In case a storage unit class shall be deleted that has storage units or storage attributes assigned, the user is informed with an error message and the action is not completed.

Attribute	Value
MES-Business: GxP relevance	No
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

2.8.2.4 GID-2789174 ASSIGN STORAGE UNITS TO A STORAGE UNIT CLASS (WH0100.07.02.04)

Storage units can be assigned to a storage unit class with the following dialog:

- A list of selectable storage units. Already assigned storage units are flagged as selected.
- The list of selectable storage units can be filtered by storage unit name and description, storage zone, and area.
- The list of selectable storage units can be sorted, controlled by the column header fields of the list.

The following error cases can occur:

- In case the assignment has the result that more than one storage attribute with the same name but different values is assigned to a storage unit (implicitly via storage unit class), the user is informed with an error message and the action is not completed.
- In case the assignment has the result that more than one temperature range is assigned to a storage unit (implicitly via storage unit class), the user is informed with an error message and the action is not completed.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

2.8.2.5 GID-2789175 ASSIGN STORAGE ATTRIBUTES TO A STORAGE UNIT CLASS (WH0100.07.02.05)

Storage attributes can be assigned to a storage unit class with the following dialog:

- A list of selectable storage attributes. Already assigned storage attributes are flagged as selected.
- The list of selectable storage attributes can be filtered by storage attribute name, description, type, and value.
- The list of selectable storage attributes can be sorted, controlled by the column header fields of the list.

The following error cases can occur:

- In case the assignment has the result that a storage attribute with the same name but different values is assigned to the storage unit class, the user is informed with an error message and the action is not completed.
- In case the assignment has the result that storage attributes with the same name but different values are assigned to a storage unit (implicitly via its storage unit class assignments), the user is informed with an error message and the action is not completed.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

2.8.3 *GID-2789176 Storage Unit Class Access Privileges (WH0100.07.03)*

For storage unit classes, six basic access privileges are available:

- WH_viewStorageUnitClass
- WH_createStorageUnitClass
- WH_editStorageUnitClass
- WH_deleteStorageUnitClass
- WH_exportStorageUnitClass
- WH_importStorageUnitClass

For specific operations, additional access privileges are available:

- WH_assignStorageUnitsToStorageUnitClass
- WH_assignStorageAttributesToStorageUnitClass

Based on the privileges, the corresponding buttons are enabled or disabled.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	Yes

2.9 Supplier Editor (WH0100.08+)

The supplier editor allows to define new supplier data and view, change, and delete existing supplier data.

As quality assurance person, I want to know which batch was received from which supplier. Supplier data needs to be maintained that can be linked to a Goods Receipt.

As operator, executing a goods receipt, I want to see the supplier data of the batch to compare with my external received purchase order documents and/or labels on received stock.

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2.9.1 *GID-2789178 Supplier Attributes (WH0100.08.01)*

Name	Data type	Format or Length	Input	Comment
Name *	String	64	I	---
Description *	String	255	O	---
Disabled *	Boolean	---	O	Default: false Needs to be set in import file.
Comment	String	2000	O	---

LEGEND

*=default visibility in the editor's list

I=insert only and mandatory; O=optional

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

2.9.2 *Supplier Operations (WH0100.08.02+)*

Besides the common operations for Filters (WH0100.01.01) ([GID-2789112](#)), Export Data (WH0100.01.02) ([GID-2789114](#)), Import Data (WH0100.01.03) ([GID-2789115](#)), Refresh Data (WH0100.01.04) ([GID-2789116](#)), and View Data (WH0100.01.05) ([GID-2789117](#)), this editor provides the following additional operations:

- add a supplier ([GID-2789180](#)),
- edit a supplier ([GID-2789181](#)),
- delete a supplier ([GID-2789182](#)).

2.9.2.1 GID-2789180 ADD A SUPPLIER (WH0100.08.02.01)

To create a new supplier, the following dialog must be saved:

- [Supplier] Name, unique
- [Supplier] Description
- [Supplier] Comment
- [Supplier] Disabled

The following error cases can occur:

- In case a supplier is created without providing all mandatory data, the user is informed with an error message and the action is not completed.
- In case a supplier is created with an already existing name, the user is informed with an error message and the action is not completed.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

2.9.2.2 GID-2789181 EDIT A SUPPLIER (WH0100.08.02.02)

The master data of a selected supplier can be changed in the following dialog:

- [Supplier] Name, read-only
- [Supplier] Description
- [Supplier] Comment
- [Supplier] Disabled

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

2.9.2.3 GID-2789182 DELETE A SUPPLIER (WH0100.08.02.03)

The selected supplier can be deleted. The user must confirm the deletion of the supplier.

The following error cases can occur:

- In case a supplier shall be deleted that is referenced by another object (e.g. from a goods receipt), the user is informed with an error message and the action is not completed.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

2.9.3 GID-2789183 Supplier Access Privileges (WH0100.08.03)

For suppliers, six basic access privileges are available:

- WH_viewSupplier
- WH_createSupplier
- WH_editSupplier
- WH_deleteSupplier

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- WH_exportSupplier
- WH_importSupplier

Based on the privileges, the corresponding buttons are enabled or disabled.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	Yes

2.10 Batch Editor (WH0100.09+)

The Batch editor allows to view and export batch data and support the operation to transfer sublots of one batch to another batch.

As quality assurance person, I want to see batch characteristics and attributes.

As quality assurance person, I want to be able to split a batch since the last goods receipt of same batch has different characteristics or another expiry date than the one before.

As a quality assurance person, I want to merge batches since they have the same characteristics and expiry date and they do not need to be maintained separately.

As a quality assurance person, I want to be able to create a batch with its characteristics in case they are available from external systems before a goods receipt is executed.

As a quality assurance person, I want to be able to change batch data if a batch has changed its characteristics. The old and new values of the batch should be visible while the electronic signature to confirm the change is being performed.

As a quality assurance person, I want to be able to see all changes performed on batch data, with information when and by whom a change was performed, to allow a risk assessment for past and future usages of the batch.

2.10.1 GID-2789185 Batch Attributes (WH0100.09.01)

Name	Data type	Format or Length	Input	Comment
Name *	String	10	I	---
Part * [Name][.Revision]	Object link to part	---	I	Part of the batch.
Part Description *	Object link to Part	---	R	---
Unit of Measure *	Object link to Unit of Measure	---	M	Needs to be convertible to part UoM by standard conversions.

Name	Data type	Format or Length	Input	Comment
Quality Status *	FSM	---	M	---
Expiry Date *	Date	---	O	---
Retest Date	Date	---	O	---
Production Date	Date	---	O	---
Potency *	Measured value	---	O	Only UoMs that are an element of the UoMsOfPotency list are allowed. List name is configurable in General Settings section of Warehouse configuration.
Supplier	Object link to Supplier	---	O	---
Comment	String	255	O	---

LEGEND

*=default visibility in the editor's list

M=mandatory; R=read-only; I=insert only and mandatory; O=optional

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

2.10.2 Batch Operations (WH0100.09.02+)

Besides the common operations for Filters (WH0100.01.01) ([GID-2789112](#)), Export Data (WH0100.01.02) ([GID-2789114](#)), Import Data (WH0100.01.03) ([GID-2789115](#)), Refresh Data (WH0100.01.04) ([GID-2789116](#)), and View Data (WH0100.01.05) ([GID-2789117](#)), this editor provides the following additional operations:

- add a batch ([GID-2789189](#)),
- edit a batch ([GID-2789191](#)),
- batch transfer ([GID-2789187](#)),
- batch history ([GID-2789193](#)).

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2.10.2.1 GID-2789187 BATCH TRANSFER (WH0100.09.02.01)

The batch transfer operation allows to split a batch and assign some or all its sublots to another existing batch.

To transfer sublots to another batch, the following dialog is available:

- Source Batch [Identifier], read-only
- Part [.Revision | Description], read-only
- Storage Unit, filter criteria for subplot list
- Logistic Unit, filter criteria for subplot list

List of sublots with the following columns:

- Sublot [Identifier]
- Logistic Unit [Identifier], LUs of the **Payload Only** category are not displayed
- Quantity [with UoM]
- Storage Unit [Name]
- Storage Zone [Name]
- Area [Name]
- Site [Name]

It is possible to select or unselect all displayed sublots at once.

- Target batch selection, limited to the same material as that of the source batch
- Transfer Button
- Close Button

Business logic of batch transfer execution:

- The system shall request a printer selection.
- It shall create copies of the selected sublots but with a new target batch.
- The payloads of the selected source sublots shall be deleted and the selected source sublots shall be logically deleted.
- For each created subplot a new label shall be printed. The label layout can be defined in the **Label Designs** section of the Warehouse Administration interface. It is configured with the **Sublot (Batch Transfer)** setting. The label data can contain the old subplot identifier.

Specific transaction history data:

- Transaction Process: Batch Transfer
- Payload (Source): set for the created subplot, identifier of the deleted subplot of the source batch

- Payload (Target): set for the deleted subplot, identifier of the newly created subplot of the target batch
- Batch (Old): set for the created subplot with the source batch
- Batch (New): set for the deleted subplot with the target batch
- Signature data

As result of the batch transfer process a dialog with a list containing the old and new subplot identifiers shall be displayed.

The following error cases can occur:

- In case source and target batch are identical, the user is informed with an error message and the action is aborted.
- In case the target batch selection is not valid, the user is informed with an error message and the action is aborted.
- In case there is a conflict in storage conditions for the target batch, the user is informed with an error message and the action is aborted.
- In case a Goods Issue Reservation exists for a payload, the batch transfer for the subplot is not executed. The user is informed with an error message.
- In case the required signature was not provided successfully, the user is informed with an error message and the action is aborted.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	Yes

2.10.2.2 GID-2789188 BATCH TRANSFER SIGNATURE (WH0100.09.02.01.01)

To confirm the batch transfer, the system shall require a performer signature defined with the WH_transferBatch access privilege. The signer, timestamp, and a provided comment are stored with the transaction history data sets created for the batch transfer with its subplot deletion and subplot creation.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	Yes

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2.10.2.3 GID-2789189 ADD A BATCH (WH0100.09.02.02)

To create a new batch, the following dialog must be saved:

- Name, unique (depending on the system configuration unique in combination with the part)
- Part with description
- Unit of Measure (prefilled with part UoM after part selection)
- Expiry Date
- Retest Date
- Production Date
- Potency
- Supplier
- Comment

Successfully saving a new batch saves the batch data in the batch history.

The following error cases can occur:

- In case a batch is created without providing all mandatory data, the user is informed with an error message and the action is not completed.
- In case a batch is created with an already existing name and the system is configured as **Batch Identifier is unique**, the user is informed with an error message and the action is not completed.
- In case a batch is created with an already existing name for the same part and the system is not configured as **Batch Identifier is unique**, the user is informed with an error message and the action is not completed.
- In case a batch is created with a unit of measure that is not convertible to the unit of measure of its part, the user is informed with an error message and the action is not completed.
- In case the required signature was not provided successfully, the user is informed with an error message and the action is aborted.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	Yes

2.10.2.4 GID-2789190 BATCH CREATION SIGNATURE (WH0100.09.02.02.01)

To confirm the batch creation, the system shall require a performer signature defined with the WH_createBatch access privilege. The signer, timestamp, and a provided comment are stored with the batch history data set for the batch creation.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	Yes

2.10.2.5 GID-2789191 EDIT A BATCH (WH0100.09.02.03)

The master data of a selected batch can be changed in the following dialog. The dialog shall present non-changeable data as read-only:

- Name
- Part with description

All changeable data is displayed with read-only **Old** values and with additional editable input fields to enter **New** values. The **New** value fields are prefilled with the **Old** values:

- Unit of Measure
- Expiry Date
- Retest Date
- Production Date
- Potency
- Supplier
- Comment

Successfully saving the changed batch saves the changed batch data in the batch history.

The following error cases can occur:

- In case a batch is changed without providing all mandatory data, the user is informed with an error message and the action is not completed.
- In case a batch is changed and the new unit of measure is not convertible to the unit of measure of its part, the user is informed with an error message and the action is not completed.
- In case a batch was changed in the meantime by someone else, the data shown as **Old** may not valid anymore. The user is informed with an error message and the action is not completed.
- In case the required signature was not provided successfully, the user is informed with an error message and the action is aborted.

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Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	Yes

2.10.2.6 GID-2789192 BATCH CHANGE SIGNATURE (WH0100.09.02.03.01)

To confirm the batch change, the system shall require a performer signature defined with the WH_editBatch access privilege. The signer, timestamp, and a provided comment are stored with the batch history data set for the batch change.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	Yes

2.10.2.7 GID-2789193 BATCH HISTORY (WH0100.09.02.04)

The read-only dialog shall provide all data changes performed on a selected batch.

The dialog shall provide the following data in a list or in a **View Batch History** dialog that opens by double-clicking a list item:

- Batch [Name]
- Part [Name]
- Time [of history entry creation]
- Type [**X_transactionType** choice list]
- Subtype [**X_transactionSubtype** choice list]
- Order [Identifier]
- Order Step [Identifier]
- Unit of Measure (Old) *
- Unit of Measure (New) *
- Status (Old) *
- Status (New) *
- Expiry Date (Old) *
- Expiry Date (New) *
- Retest Date (Old) *
- Retest Date (New) *
- Production Date (New) *
- Production Date (Old) *

- Potency (Old) *
- Potency (New) *
- Supplier Name (Old) *
- Supplier Name (New) *
- User (First Name Last Name (Login Name))
- Station
- Performer Signature *
- Performer Signature Comment *
- Verifier Signature *
- Verifier Signature Comment *

Data marked with * is not visible in the list, but within the **View Batch History** dialog.
By default, the list shall be ordered descending by time.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	Yes

2.10.3 GID-2789194 Batch Access Privileges (WH0100.09.03)

For batches, five basic access privileges are available:

- WH_viewBatch (additionally allows access to the batch history)
- WH_createBatch
- WH_editBatch
- WH_transferBatch
- WH_exportBatch

Based on the privileges, the corresponding buttons are enabled or disabled.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	Yes

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2.11 Goods Receipt Editor (WH0100.10+)

The goods receipt editor allows to create, view, change, release, and delete goods receipt data.

As a warehouse office worker, I want to create, edit, and delete goods receipts and their positions.

As a warehouse office worker, I want to filter the list of goods receipts, so that I can find specific deliveries according to flexible criteria.

As a warehouse office worker, I want to see the status of goods receipts, so that I can find specific goods receipts and follow-up on problems. This also includes the received quantities of the positions.

2.11.1 GID-2789196 Goods Receipt Attributes (WH0100.10.01)

Name	Data type	Format or Length	Input	Comment
Identifier *	String	80	I	Auto-generated according to Warehouse configuration (default: GR%10d).
Purchase Order *	String	80	O	---
Barcode *	String	80	O	---
Expected Delivery Date *	Date and Time	Localized at UI	O	---
Status *	String	---	R	Possible values: Created, Released, In Progress, Finished, Aborted.

LEGEND

*=default visibility in the editor's list

R=read-only; I=insert only and mandatory; O=optional

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

2.11.1.1 GID-2789197 Goods Receipt Position Attributes (WH0100.10.01.01)

Name	Data type	Format or Length	Input	Comment
[Position] No.	String	80	I	Auto-generated sequence, starting with 01
Part [Name][.Revision] *	Object link to Part	---	M	---
Part Description *	Object link to Part	---	R	---
Batch [Identifier] *	String	64	O	Max. length see Identifier Patterns at Warehouse Configuration (default: 10) No blank.
Expected Quantity *	Measured value	With UoM	M	---
Received Quantity *	Measured value	With UoM	R	---
Actual Quantity *	Measured value	With UoM	R	---
[Part] Sampling Required *	Object link to Part	---	R	---
[Part] Sampling Type *	Object link to Part	---	R	---
Supplier [Name] *	Object link to Supplier	---	O	---

LEGEND

*=default visibility in the editor's list

M=mandatory; R=read-only; I=insert only and mandatory; O=optional

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

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2.11.2 Goods Receipt Operations (WH0100.10.02+)

Besides the common operations for Filters (WH0100.01.01) ([GID-2789112](#)), Refresh Data (WH0100.01.04) ([GID-2789116](#)), and View Data (WH0100.01.05) ([GID-2789117](#)), this editor provides the following additional operations:

- add a goods receipt ([GID-2789199](#)),
- edit a goods receipt ([GID-2789200](#)),
- delete a goods receipt ([GID-2789201](#)),
- release a goods receipt ([GID-2789202](#)),
- abort a goods receipt ([GID-2789203](#)).

The editor provides the following operations on a goods receipt position:

- add a goods receipt position ([GID-2789204](#)),
- edit a goods receipt position ([GID-2789205](#)),
- delete a goods receipt position ([GID-2789206](#)).

2.11.2.1 GID-2789199 ADD A GOODS RECEIPT (WH0100.10.02.01)

To create a new goods receipt, the following dialog must be saved:

- Identifier, unique
- Purchase Order
- Barcode, unique
- Expected Delivery Date
- Status, prefilled with **Created**

The following error cases can occur:

- In case a good receipt is created without providing all mandatory data, the user is informed with an error message and the action is not completed.
- In case a goods receipt is created with a non-unique identifier or barcode, the user is informed with an error message and the action is not completed.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

2.11.2.2 GID-2789200 EDIT A GOODS RECEIPT (WH0100.10.02.02)

The master data of a selected goods receipt in the **Created** status can be changed in the following dialog:

- Identifier, read-only
- Purchase Order
- Barcode, unique
- Expected Delivery Date
- Status, read-only

The following error cases can occur:

- In case the barcode of a goods receipt is updated to a non-unique value, the user is informed with an error message and the action is not completed.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	Yes

2.11.2.3 GID-2789201 DELETE A GOODS RECEIPT (WH0100.10.02.03)

A selected goods receipt in the **Created** or **Released** statuses can be deleted. The user must confirm the deletion of the goods receipt.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	Yes

2.11.2.4 GID-2789202 RELEASE A GOODS RECEIPT (WH0100.10.02.04)

To allow the processing of a goods receipt within the execution client, a goods receipt needs to be released. To release a goods receipt, it needs to be in the **Created** status.

The following error cases can occur:

- In case the goods receipt does not have at least one position, the user is informed with an error message and the action is not completed.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	Yes

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2.11.2.5 GID-2789203 ABORT A GOODS RECEIPT (WH0100.10.02.05)

A goods receipt in the **In Progress** status cannot be deleted anymore. In case the goods receipt shall not be finished, it can be aborted. The user must confirm the aborting of the goods receipt.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	Yes

2.11.2.6 GID-2789204 ADD A GOODS RECEIPT POSITION (WH0100.10.02.06)

To create a new goods receipt position, the following dialog must be saved:

- No., unique
- Part
- Batch [Identifier], if the batch exists and has a supplier maintained, the supplier is prefilled for the goods receipt position
- Expected Quantity
- Supplier

The following error cases can occur:

- In case a good receipt position is created without providing all mandatory data, the user is informed with an error message and the action is not completed.
- In case a goods receipt position is created with a non-unique position number within the goods receipt, the user is informed with an error message and the action is not completed.
- In case the expected quantity with its unit of measurement is of a different unit of measurement type than the part unit of measurement and the quantity is not convertible, the user is informed with an error message and the action is not completed.
- In case the system is configured for unique batch identifiers and the expected batch identifier for the goods receipt position exists already for a different part, the user is informed with an error message and the action is not completed.
- In case the provided batch has a maintained supplier and the goods receipt position has a different supplier name set, the user is informed with an error message and the action is not completed. An empty batch name is allowed, however.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	Yes

2.11.2.7 GID-2789205 EDIT A GOODS RECEIPT POSITION (WH0100.10.02.07)

The data of a selected goods receipt position can be changed as long the goods receipt is in the **Created** status in the following dialog:

- No., unique
- Part
- Batch [Identifier], if the batch exists and has a supplier maintained, the supplier is prefilled for the goods receipt position.
- Expected Quantity
- Supplier

The following error cases can occur:

- In case a good receipt position is updated without providing all mandatory data, the user is informed with an error message and the action is not completed.
- In case a goods receipt position is updated with a non-unique position number within the goods receipt, the user is informed with an error message and the action is not completed.
- In case the expected quantity with its unit of measurement is of a different unit of measurement type than the part unit of measurement and the quantity is not convertible, the user is informed with an error message and the action is not completed.
- In case the system is configured for unique batch identifiers and the updated batch identifier for the goods receipt position exists already for a different material, the user is informed with an error message and the action is not completed.
- In case the provided batch has a maintained supplier and the goods receipt position has a different supplier name set, the user is informed with an error message and the action is not completed. An empty batch name is allowed, however.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	Yes

2.11.2.8 GID-2789206 DELETE A GOODS RECEIPT POSITION (WH0100.10.02.08)

A selected goods receipt position can be deleted as long the goods receipt is in the **Created** status. The user must confirm the deletion of the goods receipt position.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	Yes

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2.11.3 GID-2789207 Goods Receipt Access Privileges (WH0100.10.03)

For goods receipts, three basic access privileges are available:

- WH_viewGoodsReceipt
- WH_editGoodsReceipt (required to maintain a goods receipt position)
- WH_deleteGoodsReceipt

For specific operations, additional access privileges are available:

- WH_abortGoodsReceipt
- WH_releaseGoodsReceipt

Based on the privileges, the corresponding buttons are enabled or disabled.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	Yes

2.12 Storage Zone Editor (WH0100.11+)

The storage zone editor allows to define new storage zones, view, change, and delete existing storage zones as components of the warehouse topology. Storage zones group storage units and are part of an area.

As a warehouse administrator, I want to set up and update the warehouse topology including storage zones assigned to an area.

As a warehouse administrator, I want to define which storage zones should provide the incoming parts for a production line.

2.12.1 GID-2789209 Storage Zone Attributes (WH0100.11.01)

Name	Data type	Format or Length	Input	Comment
Name *	String	64	I	---
Description *	String	255	O	---
Area *	Object link to Area	---	M	---
Incoming Part Zone *	Boolean	---	O	Default: false

LEGEND

*=default visibility in the editor's list

M=mandatory; I=insert only and mandatory; O=optional

Attribute	Value
MES-Business: GxP relevance	No
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

2.12.2 Storage Zone Operations (WH0100.11.02+)

Besides the common operations for Filters (WH0100.01.01) ([GID-2789112](#)), Export Data (WH0100.01.02) ([GID-2789114](#)), Import Data (WH0100.01.03) ([GID-2789115](#)), Refresh Data (WH0100.01.04) ([GID-2789116](#)), and View Data (WH0100.01.05) ([GID-2789117](#)), this editor provides the following additional operations:

- add a storage zone ([GID-2789211](#)),
- edit a storage zone ([GID-2789212](#)),
- delete a storage z ([GID-2789213](#)) ([GID-2789213](#)).

2.12.2.1 GID-2789211 ADD A STORAGE ZONE (WH0100.11.02.01)

To create a new storage zone, the following dialog must be saved:

- Name, unique
- Description
- Area
- Incoming Part Zone

The following error cases can occur:

- In case a storage zone is created without providing all mandatory data, the user is informed with an error message and the action is not completed.
- In case a storage zone is created with an invalid value (e.g. duplicate name, non-existing area), the user is informed with an error message and the action is not completed.

Attribute	Value
MES-Business: GxP relevance	No
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

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2.12.2.2 GID-2789212 EDIT A STORAGE ZONE (WH0100.11.02.02)

The master data of a selected storage zone can be changed in the following dialog:

- Name, read-only
- Description
- Area
- Incoming Part Zone

The following error cases can occur:

In case a storage zone is saved without providing all mandatory data, the user is informed with an error message and the action is not completed.

In case a storage zone is saved with an invalid value (e.g. non-existing area), the user is informed with an error message and the action is not completed.

Attribute	Value
MES-Business: GxP relevance	No
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

2.12.2.3 GID-2789213 DELETE A STORAGE ZONE (WH0100.11.02.03)

The selected storage zone(s) can be deleted. The user must confirm the deletion of the storage zone(s).

The following error cases can occur:

- In case a storage zone shall be deleted that is referenced by another object (e.g. storage unit), the user is informed with an error message and the action is not completed.

Attribute	Value
MES-Business: GxP relevance	No
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

2.12.3 GID-2789214 Storage Zone Access Privileges (WH0100.11.03)

For storage zones, three basic access privileges are available:

- WH_viewStorageZone
- WH_editStorageZone (required for adding, importing, and exporting)
- WH_deleteStorageZone

Based on the privileges, the corresponding buttons are enabled or disabled.

Attribute	Value
MES-Business: GxP relevance	No
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	Yes

2.13 Picking Order Editor (WH0100.12+)

The picking order editor allows to create, view, change, delete, release, unrelease, and abort picking orders.

As a warehouse planning office worker, I want to control picking processes needed for production, replenishment, or deliveries.

2.13.1 GID-2789216 Picking Order Attributes (WH0100.12.01)

Name	Data type	Format or Length	Input	Comment
Identifier *	String	80	I	Auto-generated according to Warehouse configuration (default: PO%010d).
Status *	FSM WH_PickingOrder	---	R	Possible values: Created, Released, Started, Picked, Transport Orders Created, Finished, Aborted.
Initiator *	String	80	I	---
Initiator Type *	Option list	---	I	Extensible option list WH_PickingOrderInitiatorType with the following default values: OrderProvisioning, OrderStepProvisioning, Replenishment.
Target Storage Unit [Name] *	Object link to Storage Unit	---	O	---
Target Storage Zone [Name] *	Object link to Storage Zone	---	O	---
Target Area [Name] *	Object link to Area	---	M	---
Due Date *	Date and Time	Localized at UI	O	---

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LEGEND

*=default visibility in the editor's list

M=mandatory; R=read-only; I=insert only and mandatory; O=optional

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

2.13.1.1 GID-2789217 PICKING ORDER POSITION ATTRIBUTES (WH0100.12.01.01)

Name	Data type	Format or Length	Input	Comment
[Position] No. *	String	80	I	Auto-generated sequence, starting with 01
Part [Name][.Revision] *	Object link to Part	---	I	---
Batch [Identifier] *	String	64	I, O	Only soft reference. Can be a list of batches if created for PharmaSuite order.
Required Quantity *	Measured value	With UoM	M	---
Picked Quantity *	Measured value	With UoM	R	---
Status *	FSM WH_PickingOrderPosition	---	R	Possible values: Created, Started, Picked.
Created Manually *	Boolean	Yes / No	R	---

LEGEND

*=default visibility in the editor's list

M=mandatory; R=read-only; I=insert only and mandatory; O=optional

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

2.13.2 Picking Order Operations (WH0100.12.02+)

Besides the common operations for Filters (WH0100.01.01) ([GID-2789112](#)), Refresh Data (WH0100.01.04) ([GID-2789116](#)), and View Data (WH0100.01.05) ([GID-2789117](#)), this editor provides the following additional operations:

- add a picking order ([GID-2789219](#)),
- edit a picking order ([GID-2789220](#)),
- delete a picking order ([GID-2789221](#)),
- release a picking order ([GID-2789222](#)),
- unrelease a picking order ([GID-2789223](#)),
- abort a picking order ([GID-2789224](#)),
- show open transports ([GID-2789225](#)),
- show picked stock ([GID-2789226](#)).

The editor provides the following operations on a picking order position:

- add a picking order position ([GID-2789227](#)),
- edit a picking order position ([GID-2789228](#)),
- delete a picking order position ([GID-2789229](#)).

2.13.2.1 GID-2789219 ADD A PICKING ORDER (WH0100.12.02.01)

To create a new picking order, the following dialog must be saved:

- Identifier, unique
- Initiator
- Initiator Type
- Target Storage Unit
- Target Storage Zone
- Target Area
- Due Date

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The following error cases can occur:

- In case a picking order is created without providing all mandatory data, the user is informed with an error message and the action is not completed.
- In case a picking order is created with a non-unique identifier, the user is informed with an error message and the action is not completed.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

2.13.2.2 GID-2789220 EDIT A PICKING ORDER (WH0100.12.02.02)

The data of a selected picking order in the **Created** status can be changed in the following dialog:

- Identifier, read-only
- Initiator, read-only
- Initiator Type, read-only
- Target Storage Unit
- Target Storage Zone
- Target Area
- Due Date

The following error cases can occur:

- In case a picking order is changed without providing all mandatory data, the user is informed with an error message and the action is not completed.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	Yes

2.13.2.3 GID-2789221 DELETE A PICKING ORDER (WH0100.12.02.03)

A selected picking order can be deleted as long the picking order is in the **Created** status. The user must confirm the deletion of the picking order.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	Yes

2.13.2.4 GID-2789222 RELEASE A PICKING ORDER (WH0100.12.02.04)

To allow the processing of a picking order within the execution client, a picking order needs to be released. To release a picking order, it needs to be in the **Created** status.

The following error cases can occur:

- In case the picking order does not have at least one position, the user is informed with an error message and the action is not completed.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	Yes

2.13.2.5 GID-2789223 UNRELEASE A PICKING ORDER (WH0100.12.02.05)

To allow the deletion or change of a picking order that has already been released, the picking order needs to be unreleased first. To unrelease a picking order it needs to be in the **Released** status. After unreleasing a picking order, the system shall set the picking order status to **Created**.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	Yes

2.13.2.6 GID-2789224 ABORT A PICKING ORDER (WH0100.12.02.06)

A picking order in the **Started** and **Picked** statuses cannot be deleted anymore. In case a picking order in these statuses shall not be finished, it can be aborted. The user must confirm the aborting of the picking order. After the confirmation, the system shall set the picking order status to **Aborted**.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	Yes

2.13.2.7 GID-2789225 SHOW OPEN TRANSPORTS (WH0100.12.02.07)

The read-only dialog shall provide an overview of picked stock that has not yet been transported to the planned target.

The list includes logistic units assigned to the non-finished or aborted picking order during picking and all their payloads only if

- the logistic unit or its root logistic unit has an active transport order (initiator = PO identifier, initiator type = PickingOrder) for this picking order or
- for the logistic unit, no transport order (initiator = PO identifier, initiator type = PickingOrder) has been created for this picking order yet and the logistic unit is not already located at the planned target of the PO.

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The dialog shall provide this data in a list with the following columns:

- Path [Logistic Unit Identifiers]
- Transport Order [Identifier]
- TO Status
- Part [Name.Revision]
- Batch [Name]
- Sublot [Identifier]
- Quantity
- Current SU [Name] of LU

The transport order identifier and status are only displayed if the transport order has been created for the current picking order (transport order initiator equals the picking order identifier and transport order initiator type is **PickingOrder**).

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

2.13.2.8 GID-2789226 SHOW PICKED STOCK (WH0100.12.02.11)

The read-only dialog shall provide an overview of the picked stock for the picking order.

The list includes logistic units assigned to the picking order during picking and all their payloads.

The data shall be stored as history data. Even if a logistic unit is deleted or a subplot is consumed, the data shall be still available.

The dialog shall provide this data in a list with the following columns:

- Path [Logistic Unit Identifiers]
- No. [Picking Order Position]
- Part [Name.Revision]
- Batch [Name]
- Sublot [Identifier]
- Quantity

By default, the list shall be ordered by first and second column.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

2.13.2.9 GID-2789227 ADD A PICKING ORDER POSITION (WH0100.12.02.08)

To create a new picking order position, the following dialog must be saved:

- [Position] No., unique
- Part [Name.Revision]
- Batch [Identifier]
- Required Quantity

The **Created Manually** flag will be set to true.

The status will be set to **Created**.

The following error cases can occur:

- In case a picking order position is created without providing all mandatory data, the user is informed with an error message and the action is not completed.
- In case a picking order position is created with a non-unique position number within the picking order, the user is informed with an error message and the action is not completed.
- In case the required quantity with its unit of measurement is of a different unit of measurement type than the part unit of measurement and the quantity is not convertible, the user is informed with an error message and the action is not completed.
- In case the required quantity is not > 0 , the user is informed with an error message and the action is not completed.
- In case a picking order position is created and the entered batch and part are inconsistent, the user is informed with an error message and the action is not completed.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	Yes

2.13.2.10 GID-2789228 EDIT A PICKING ORDER POSITION (WH0100.12.02.09)

The data of a selected picking order position can be changed as long the picking order is in the **Created** status in the following dialog:

- [Position] No., unique
- Part [Name.Revision], read-only
- Batch [Identifier or Identifier list], read-only, (list uses a comma + blank as separator; if this can be a character of a batch identifier, system needs different initial configuration)
- Required Quantity

The following error cases can occur:

- In case a picking order position is updated without providing all mandatory data, the user is informed with an error message and the action is not completed.

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- In case a picking order position is updated with a non-unique position number within the picking order, the user is informed with an error message and the action is not completed.
- In case the required quantity with its unit of measurement is of a different unit of measurement type as the part unit of measurement and the quantity is not convertible, the user is informed with an error message and the action is not completed.
- In case the required quantity is not > 0, the user is informed with an error message and the action is not completed.
- In case a picking order position is updated and the entered batch and part are inconsistent, the user is informed with an error message and the action is not completed.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

2.13.2.11 GID-2789229 DELETE A PICKING ORDER POSITION (WH0100.12.02.10)

A selected picking order position can be deleted as long the picking order is in the **Created** status. The user must confirm the deletion of the picking order position.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	Yes

2.13.3 GID-2789230 Picking Order Access Privileges (WH0100.12.03)

For picking orders, four basic access privileges are available:

- WH_viewPickingOrder
- WH_createPickingOrder
- WH_editPickingOrder (required to maintain picking order positions)
- WH_deletePickingOrder

For specific operations, additional access privileges are available:

- WH_abortPickingOrder
- WH_releasePickingOrder
- WH_unreleasePickingOrder

Based on the privileges, the corresponding buttons are enabled or disabled.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	Yes

2.14 Picking Order for PharmaSuite Order Editor (WH0100.13+)

The editor is only available in systems that have the **ProcessOrderItem** FSM configuration for PharmaSuite orders installed.

The picking order for MES order editor allows to view PharmaSuite order steps and create picking orders for them.

As a warehouse planning office worker, I want to provide and schedule picking orders needed for PharmaSuite production orders.

2.14.1 GID-2789232 Picking Order for PharmaSuite Order Attributes (WH0100.13.01)

Name	Data type	Format or Length	Input	Comment
Order [Identifier] *	String	---	R	Only those orders are displayed that have at least one order step input with a part flagged as Apply for picking for an order step in the Generated , In process , Reactivated , or Held statuses.
Order Status *	FSM configuration ProcessOrderItem	---	R	Only orders in the Released , In process , or Reactivated statuses are displayed.
Order Step [Identifier] *	String	---	R	Order identifier is used as prefix + a separator. Only those order steps are displayed that have an order step input with a part flagged as Apply for picking , a planned quantity > 0, and an order step status is Generated , In process , Reactivated , or Held . The order step input needs to be not be processed or split (Created or Selected statuses).
Order Step Status *	FSM configuration OrderStep	---	R	---

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Name	Data type	Format or Length	Input	Comment
Picking Order [Identifier] *	String	---	R	<p>Concatenated list of PO Identifiers with</p> <ul style="list-style-type: none"> ▪ PO Initiator = order identifier and initiator type = Order Provisioning or ▪ PO Initiator = order step identifier and initiator type = Order Step Provisioning

LEGEND

*=default visibility in the editor's list

R=read-only

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

2.14.2 GID-2789233 Picking Order for PharmaSuite Order Position Attributes (WH0100.13.01.01)

Name	Data type	Format or Length	Input	Comment
[Position] No. *	String	---	R	PharmaSuite order step input position or manually created position number.
Part [Name][.Revision] *	Object link to Part	---	R	---
Batch [Identifier] *	Object link to Batch	---	R	Can be a list of batches if created for PharmaSuite orders and batch allocations.
Required Quantity *	Measured value	With UoM	R	With UoM of the part.

Name	Data type	Format or Length	Input	Comment
Picked Quantity *	Measured value	With UoM	R	---
Status *	FSM WH_PickingOrderPosition	---	R	Possible values: Created, Started, Picked.
Created Manually *	Boolean	Yes / No	R	Only true if position was created with Picking Order editor.

LEGEND

*=default visibility in the editor's list

R=read-only

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

2.14.3 Picking Order for PharmaSuite Order Operations (WH0100.13.02+)

Besides the common operations for Filters (WH0100.01.01) ([GID-2789112](#)), Refresh Data (WH0100.01.04) ([GID-2789116](#)), and View Data (WH0100.01.05) ([GID-2789117](#)), this editor provides the following additional operations:

- create a picking order for a PharmaSuite order ([GID-2789235](#)),
- create a picking order for a PharmaSuite order step ([GID-2789236](#)).

2.14.3.1 GID-2789235 ADD A PICKING ORDER FOR A PHARMASUITE ORDER (WH0100.13.02.01)

For a selected PharmaSuite order, a picking order can be created. The button is only sensitive if no picking order has yet been created for the order or an order step of the order referenced by the picking order initiator.

The action creates the picking order with the following data:

- Identifier: automatically generated
- Initiator: order identifier
- Initiator Type: **Order Provisioning**

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- Target Storage Zone:
If possible, determine the storage zone to be used. If all dispatched work centers to relevant order steps have the same configured storage zone flagged with **Incoming Parts**, this storage zone is set.
The storage zone is determined from the storage units to which the work centers are assigned.
- Target Area:
If the target storage zone is determined, the area is set according to this storage zone. If the storage zone could not be determined, the area is not filled.
- Due Date: ERP start time of the PharmaSuite order
- For all PharmaSuite order step inputs of the order with a part flagged as **Apply for picking**, a planned quantity > 0, and a status other than processed or split (**Created** or **Selected** statuses), a picking order position is added in the **Created** status with the planned quantity as required quantity.

If a target area could be set, the picking order is released. If not, the user is informed that the picking order is not released due to the missing target area.

The following error cases can occur:

- In case the displayed order data is outdated (e.g. order status, order step status, or order step input has changed) and the valid data would not allow the creation of the picking order, the user is informed with an error message and the action is not completed.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	Yes

2.14.3.2 GID-2789236 ADD A PICKING ORDER FOR A PHARMA SUITE ORDER STEP (WH0100.13.02.02)

For a selected PharmaSuite order step, a picking order can be created. The button is only sensitive if no picking order has yet been created for the order or the order step referenced by the picking order initiator.

The action creates the picking order with the following data:

- Identifier: automatically generated
- Initiator: order step identifier
- Initiator Type: **Order Step Provisioning**
- Target Storage Zone:
If possible, determine the storage zone to be used. If all dispatched work centers to the order step have the same configured storage zone flagged with **Incoming Parts**, this storage zone is set.
The storage zone is determined from the storage units to which the work centers are assigned.

- Target Area:
If the target storage zone is determined, the area is set according to this storage zone. If the storage zone could not be determined, the area is not filled.
- Due Date: ERP start time of the PharmaSuite order
- For all PharmaSuite order step inputs of the order step with a part flagged as **Apply for picking**, a planned quantity > 0, and a status other than processed or split (**Created** or **Selected** statuses), a picking order position is added in the **Created** status with the planned quantity as required quantity.

If a target area could be set, the picking order is released. If not, the user is informed that the picking order is not released due to the missing target area.

The following error cases can occur:

- In case the displayed order data is outdated (e.g. order status, order step status, or order step input has changed) and the valid data would not allow the creation of the picking order, the user is informed with an error message and the action is not completed.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	Yes

2.14.4 GID-2789237 Picking Order for PharmaSuite Order Access Privileges (WH0100.13.03)

For picking orders for PharmaSuite orders, one basic access privilege is available:

- WH_viewPickingOrderForPS

For specific operations, additional access privileges are available:

- WH_createPickingOrderForPSOrder
- WH_createPickingOrderForPSOrderStep

Based on the privileges, the corresponding buttons are enabled or disabled.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	Yes

2.15 Transaction History Editor (WH0100.14+)

The Transaction History editor provides an overview of all executed inventory operations. It shall support several use cases. All are related to logistic units and their payloads:

- As an auditor or QA responsible, I want to use the transaction history as audit trail to have a complete tracking on changes performed on a payload or a logistic unit.

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- As quality assurance person, I want to be able to see all past storage units, logistic units, and payloads for a contaminated payload to find a possible polluter or cause of a cross contamination.
- As a warehouse supervisor, I want to analyze all actions performed on a payload to find the reason for a quantity inconsistency.
- As a warehouse manager, I want to be able to collect performance numbers such as movements per storage unit or goods issue per material to optimize processes.
- As an ERP system, I want to be informed about stock movements between sites to have a real-time overview of the inventoried stock.
- As an ERP system, I want to be informed about quantity changes on batch level with purpose, reasons, and/or cost center to keep cost accounting up to date.

2.15.1 GID-2789239 Transaction History Attributes (WH0100.14.01)

All data stored in the transaction history shall not contain hard references to other data objects. Instead it shall store soft references that are unique such as identifiers.

Name	Data type	Format or Length	Example data	Input	Comment
Time *	Date and Time	Localized on UI	14.12.2016 09:34:21 PM	R	Time of data set creation.
User Name	String	64	jdoe	R	User name of logged-in user at time of action.
First Name	String	64	John	R	First name of logged-in user at time of action.
Last Name	String	64	Doe	R	Last name of logged-in user at time of action.
Station	String	64	000184ST01	R	Identifier of station on which action was performed.
Transaction Object Type *	Option list element	Localized value	Payload LogisticUnit	R	History entry created for this type of object. Option List: WH_TransactionObjectType
Transaction Object Reference *	String	128	SL00001234	R	Unique identifier of object.

Name	Data type	Format or Length	Example data	Input	Comment
Transaction Type *	Option list element	Localized value	Moved	R	Type of change that was done with action. Option List: WH_TransactionType
Logistic Unit (Old) *	String	80	1010409900000000099	R	LU SSCC before action.
Logistic Unit (New) *	String	80	1010409900000000099	R	LU SSCC after action.
Storage Unit (Old) *	String	64	0044	R	Storage unit identifier before action.
Storage Unit (New) *	String	64	0073	R	Storage unit identifier after action.
Storage Zone (Old)	String	64	BUFFER01	R	Storage zone identifier before action.
Storage Zone (New)	String	64	INGROUP05	R	Storage zone identifier after action.
Area (Old)	String	64	DISPENSE01	R	Area identifier before action.
Area (New)	String	64	DISPENSE01	R	Area identifier after action.
Site (Old)	String	64	PRODUCTION03	R	Site identifier before action.
Site (New)	String	64	PRODUCTION03	R	Site identifier after action.
Part Name *	String	64	SALT033	R	Identifier of the involved part.
Part Revision	String	64	1	R	Revision of the involved part.
Batch (Old) *	String	64	H0073	R	Old identifier of the involved batch.

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Name	Data type	Format or Length	Example data	Input	Comment
Batch (New) *	String	64	H0073-1	R	New identifier of the involved batch.
Batch Status (Old) *	FSM state	Localized value	Released	R	Status of batch before the action.
Batch Status (New) *	FSM state	Localized value	Released	R	Status of batch after the action.
Batch Status (Old) (as Recorded)	FSM state	Localized value at time of creation	Released		Status of batch before the action.
Batch Status (New) (as Recorded)	FSM state	Localized value at time of creation	Released		Status of batch after the action.
Sublot Status (Old) *	Choice list element	Localized value	Unrestricted		Status of subplot before the action.
Sublot Status (New) *	Choice list element	Localized value	Quality Inspection		Status of subplot after the action.
Sublot Status (Old) (as Recorded)	Choice list element	Localized value at time of creation	Unrestricted		Status of subplot before the action.
Sublot Status (New) (as Recorded)	Choice list element	Localized value at time of creation	Quality Inspection		Status of subplot after the action.
Quantity (Old) *	Measured value as string	80	100.5 kg	R	Quantity and UoM of object before action.
Quantity (New) *	Measured value as string	80	88.3 kg	R	Quantity and UoM of object after action.

Name	Data type	Format or Length	Example data	Input	Comment
Payload (Source)	String	128	SL00001234	R	Source payload identifier of split/merge operation.
Payload (Target)	String	128	SL00001235	R	Target payload identifier of split/merge operation.
Transaction ID *	Numeric	Integer	34578	R	Group of history entries that belong to 1 transaction.
Transaction Sequence *	Numeric	Integer	1	R	Sequence that orders the history entries within 1 transaction.
Transaction Process *	String	64	Logistic unit move Payload move Merge payload Split payload Goods receipt Goods Issue Inventory correction GI on MES Order GR on MES Order	R	Process that is executed; Defined by caller, e.g. workflow, REST API, or management client action. If created due to a workflow activity, the caption of the user workflow is documented. If created due to an editor activity (e.g. Adjust Payload Quantity) the localized value is retrieved via key.
Transaction Process Reference	String	128	GR00004324	R	Identifier if process has an identifier e.g. GI or GR identifier or MES order identifier.
Transaction Purpose	Option list element meaning	Localized value	Purchase order	R	Optional purpose of the process. Option list: WH_TransactionPurpose
Transaction Purpose (as Recorded)	Option list element localization	---	Bestellung	R	Localized value of Transaction Purpose at time of creation.

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Name	Data type	Format or Length	Example data	Input	Comment
Transaction Purpose Details	String	64	068EF-001	R	The code of the details related to the purpose, e.g. the purchase order number or supplier code.
Transaction Purpose Reason	String	64	00023	R	The code of the reason related to the purpose, e.g. the reason for the needed sample.
Cost Center	String	64	10005601	R	In case costs need to be accounted, the cost center code.
Comment	String	2000	Any text	R	Remark that may be added at process.
External User	String	80	In principle any text, but typically a user name from an external system	R	User name of an external user (e.g. a user who calls the REST API).
Performed by	String	512	John Doe (jdoe) 14.12.2016 09:34:21 PM	R	User and time of first (performer) signature.
Performer Comment	String	2000	Any text	R	Comment provided with first signature.
Verified by	String	512	Max Mustermann (mm) 14.12.2016 09:36:00 PM	R	User and time of second (verifier) signature.
Verifier Comment	String	2000	Any text	R	Comment provided with second signature.

LEGEND

*=default visibility in the editor's list

R=read-only

By default, the list shall be ordered descending by time.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	Yes

2.15.2 *Transaction History Operations (WH0100.14.02+)*

Besides the common operations for Filters (WH0100.01.01) ([GID-2789112](#)), Refresh Data (WH0100.01.04) ([GID-2789116](#)), and View Data (WH0100.01.05) ([GID-2789117](#)), this editor provides no additional operations.

2.15.3 *GID-2789241 Transaction History Access Privileges (WH0100.14.03)*

For the transaction history, two basic access privileges are available:

- WH_viewTransactionHistory
- WH_exportTransactionHistory

Based on the privileges, the corresponding buttons are enabled or disabled.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

2.16 Sublot Cold Chain History Editor

As a QA responsible I want to understand how times at specific temperature range were cumulated for a subplot and which process was responsible. This is a required audit trail that needs to be tracked gapless and available at any time.

2.16.1 *GID-3393786 Sublot Cold Chain History Attributes*

Name	Format or Length	Input	Comment
Time * [Creation]	---	R	---
Sublot * [Identifier]	---	R	---

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Name	Format or Length	Input	Comment
Part * [Name][.Revision]	---	R	Part of the subplot.
Batch * [Name]	---	R	Batch of the subplot.
Temperature Range *	[<min.Temperature> .. <max.Temperature>], Warning: <Warning Threshold>, Maximum: <Maximum Threshold>	R	Temperature range of the subplot counter that is changed due to an action.
Action (Entered) *	---	R	Displayed as localized string. Meaning of element of choice list "ColdChainAction".
Storage Unit (Entered) * [Name]	---	R	Optional Storage unit that caused the start of the temperature range counter.
Timestamp (Entered) *	Date and Time	R	Time when temperature range counter of subplot started. Can be empty for an initially created subplot counter that is not started immediately.
Timestamp (Left) *	Date and Time	R	Time when temperature range counter of subplot stopped.
Cumulated Time *	d h min	R	Seconds rounded up to next minute. Calculated when Timestamp (Left) is set: Cumulated Time from last history data set + (Timestamp (Left) - Timestamp (Entered))
User Name (Entered) *	---	R	User name of logged-in user at time of Action (Entered).

Name	Format or Length	Input	Comment
Performed by	---	R	User and time of first (performer) signature who updates the Time Difference for TITR correction in 'Stock Records' editor.
Performer Comment	---	R	Comment provided with first signature.
Verified by	---	R	User and time of second (verifier) signature.
Verifier Comment	---	R	Comment provided with second signature.

LEGEND

*=default visibility in the editor's list

R=read-only

By default, the list shall be ordered descending by creation time of data sets.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	Yes

2.16.2 GID-3393792 Sublot Cold Chain History Operations

Besides the common operations for Filters ([GID-2789112](#)), Export Data ([GID-2789114](#)), Refresh Data ([GID-2789116](#)), and View Data ([GID-2789117](#)), this editor provides no additional operations.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	Yes

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2.16.3 GID-3393795 Sublot Cold Chain History Access Privileges

For subplot cold chain history, two basic access privileges are available:

- WH_viewSublotColdChainHistory
- WH_exportSublotColdChainHistory

Based on the privileges, the corresponding buttons are enabled or disabled.

Attribute	Value
MES-Business: GxP relevance	No
MES-Business: Business Impact	Medium
MES-Compliance: 21 CFR Part 11 relevance	No

2.17 Temperature Ranges (Part) Editor

As a QA responsible I want to be able to define for which temperature ranges the stay time shall be tracked for a part. This should include part-specific warning and maximum thresholds for a temperature range.

2.17.1 GID-3521828 Temperature Range (Part) Attributes (WH0100.15.01)

Name	Data type	Format or Length	Input	Comment
Min. Temperature *	Number	Max. 1 fractional digit	M	Lowest allowed value -273.1 °C Highest allowed value 999.0 °C
Max. Temperature *	Number	Max. 1 fractional digit	M	Lowest allowed value -273.1 °C Highest allowed value 999.0 °C
Warning Threshold *	Duration	d h m	O	> 0
Maximum Threshold *	Duration	d h m	M	> 0 and > Warning Threshold
Description *	String	255	O	---

LEGEND

*=default visibility in the editor's list

M=mandatory; O=optional

By default, the list shall be ordered ascending by Min. Temperature and Max. Temperature.

The UoM for all values of the temperature ranges can be set centrally as degrees Celsius (°C) or degrees Fahrenheit (°F) in the global settings of Warehouse Administration.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

2.17.2 GID-3521829 Temperature Range (Part) Assignment Attributes

Name	Data type	Format or Length	Input	Comment
Part Classes	String	---	R	List of assigned Part Class Names

LEGEND

R=read-only

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

2.17.3 Temperature Range (Part) Operations

Besides the common operations for Filters (WH0100.01.01) ([GID-2789112](#)), Export Data (WH0100.01.02) ([GID-2789114](#)), Import Data (WH0100.01.03) ([GID-2789115](#)), Refresh Data (WH0100.01.04) ([GID-2789116](#)), and View Data (WH0100.01.05) ([GID-2789117](#)), this editor provides the following additional operations:

- add a temperature range ([GID-3521831](#)),
- edit a temperature range ([GID-3521832](#)),
- delete a temperature range ([GID-3521833](#)),
- assign part classes ([GID-3521834](#)).

2.17.3.1 GID-3521831 ADD A TEMPERATURE RANGE (PART) (WH0100.15.02.01)

To create a new temperature range, the following dialog must be saved:

- Min. Temperature *
- Max. Temperature *

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- Warning Threshold *
- Maximum Threshold *
- Description

* together unique

The following error cases can occur:

- In case a temperature range is created without providing all mandatory data, the user is informed with an error message and the action is not completed.
- In case a temperature range is created with an invalid value (e.g. not unique, not allowed temperature value or format, maximum temperature < minimum temperature, warning or maximum threshold <=0, maximum threshold <= warning threshold, or warning threshold defined but no maximum threshold), the user is informed with an error message and the action is not completed.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

2.17.3.2 GID-3521832 EDIT A TEMPERATURE RANGE (PART) (WH0100.15.02.02)

The master data of a selected temperature range can be changed in the following dialog:

- Min. Temperature *
- Max. Temperature *
- Warning Threshold *
- Maximum Threshold *
- Description

* together unique, read-only in case a cold chain history entry exists that is referencing the temperature range

The following error cases can occur:

- In case a temperature range is saved without providing all mandatory data, the user is informed with an error message and the action is not completed.
- In case a temperature range is saved with an invalid value (e.g. not unique, not allowed temperature value or format, maximum temperature < minimum temperature, warning or maximum threshold <=0, maximum threshold <= warning threshold, or warning threshold defined but no maximum threshold), the user is informed with an error message and the action is not completed.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

2.17.3.3 GID-3521833 DELETE A TEMPERATURE RANGE (PART) (WH0100.15.02.03)

The selected temperature range can be deleted. The user must confirm the deletion of the temperature range. The button is only sensitive if no cold chain history entry exists that references the temperature range.

The following error cases can occur:

- In case a temperature range shall be deleted that is referenced by another object (e.g. part class), the user is informed with an error message and the action is not completed.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

2.17.3.4 GID-3521834 ASSIGN PART CLASSES TO A TEMPERATURE RANGE (PART) (WH0100.15.02.04)

Part classes can be assigned to a temperature range with the following dialog:

- A list of selectable part classes.
- Already assigned part classes are flagged as selected.
- The list of selectable part classes can be filtered by part class name and description.

The following error cases can occur:

- In case the assignment has the result that a part with its part classes has more than one temperature range with the same minimum and maximum temperature assigned, the user is informed with an error message and the action is not completed.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

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2.17.4 GID-3521835 Temperature Range (Part) Access Privileges (WH0100.15.03)

For temperature ranges, six basic access privileges are available:

- WH_viewTemperatureRange
- WH_createTemperatureRange
- WH_editTemperatureRange
- WH_deleteTemperatureRange
- WH_exportTemperatureRange
- WH_importTemperatureRange

For specific operations, additional access privileges are available:

- WH_assignPartClassesToTemperatureRange

Based on the privileges, the corresponding buttons are enabled or disabled.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	Yes

2.18 Further Editor Requirements

The following editors are specified in detail in the related Integrated Design Specification.

2.18.1 Cost Center Management

2.18.1.1 GID-3108949 MASTER DATA FOR COST CENTERS (WH-86)

As an administrator, I want to maintain the master data for cost centers, so that warehouse office workers can select the cost center for booking during goods issue creation.

Attribute	Value
MES-Business: GxP relevance	No
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

2.18.2 Goods Issue Management

2.18.2.1 GID-3108950 CREATE, EDIT, OR DELETE PLANNED GOOD ISSUES (WH-83)

As a warehouse office worker, I want to create/edit/delete (planned) goods issues.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

2.18.2.2 GID-3108951 CREATE GOOD ISSUE POSITIONS (WH-427.5)

The system shall not allow to create good issue positions with a unit of measure that is not convertible to the unit of measure of the position's part.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

2.18.2.3 GID-3108952 TRANSACTION PURPOSE DETAILS (WH-87)

As an administrator, I want to maintain the master data for transaction purpose details, so that warehouse office workers can select the details during goods issue creation.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

2.18.2.4 GID-3108953 TRANSACTION PURPOSE REASON (WH-89)

As an administrator, I want to maintain the master data for transaction purpose reason, so that warehouse office workers can select the reason during goods issue creation.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

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2.18.3 Option List Management

2.18.3.1 GID-3108954 OPTION LISTS (WH-262.1)

As an administrator, I want to maintain option lists so that the warehouse office workers and operators can always see and select the needed values.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

2.18.3.2 GID-3108955 PREDEFINED OPTION LIST ELEMENTS (WH-262.2)

As suppliers, we want to be able to define an option list with predefined elements as not changeable at all, as extensible, or as customizable.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

2.18.3.3 GID-3108956 SORTING OPTION LIST ELEMENTS (WH-262.3)

The sorting of the option list elements needs to be definable in order to display them in alphabetical or numerical sort order to the user.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

2.18.3.4 GID-3108957 OPTION LIST ELEMENTS (WH-262.4)

As an administrator, I want to maintain option list elements so that the warehouse office workers and operators can always see and select the needed value.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

2.18.3.5 GID-3108959 ELEMENTS THAT CANNOT BE DELETED (WH-262.5)

As a supplier, I want to be able to deliver elements that cannot be deleted, but edited by the administrator.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

2.18.3.6 GID-3108960 ELEMENTS THAT ARE NOT VISIBLE (WH-262.6)

It shall be possible to define option list elements that are not visible to the user.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

2.18.3.7 GID-3108961 LOCALIZE OPTION LIST ELEMENTS (WH-262.7)

It shall be possible to localize the option list elements.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

2.18.4 Permanent Logistic Unit Editor

2.18.4.1 GID-3108962 PERMANENT LOGISTIC UNITS (WH-93.1)

As a warehouse administrator, I want to provide logistic units with a graved barcode and a long life-time as permanent logistic units that can be moved even they are empty and that are tracked over their complete life cycle until they will be retired.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

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2.18.4.2 GID-3108963 USE EXISTING CARRIER (WH-93.2)

As a warehouse operator, I want to use an existing carrier with graved barcode without creating a new logistic unit for it and without having to print a label.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

2.18.4.3 GID-3108964 MULTIPLE GS1 COMPANY PREFIXES (WH-94)

Support of multiple GS1 company prefixes within the SSCC.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

2.18.5 Part (With UoM) Management

2.18.5.1 GID-3108965 SELECT PART DIALOG (WH-427.6)

The Select Part dialog shall support as filter criteria: Name, Revision, Description.

Attribute	Value
MES-Business: GxP relevance	No
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

2.18.6 Transaction History

2.18.6.1 GID-3108966 TRIGGER TRANSACTION HISTORY ENTRIES (WH-106)

Logistic unit or payload operations with a quantity or storage unit change trigger the creation of transaction history entries and provide a gapless tracking of LUs/ payloads.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	Yes

3 Widgets (WH0200+)

Warehouse Management provides widgets to build workflows that allow the operator to execute the intended process at the execution client. The sequence flow in which the widgets are to be run can be configured within the workflow. The same widget can be used for several workflows to support different processes, e.g. the **Logistic Unit Scan** widget to identify a logistic unit as target at goods receipt processing or payload split and as source at a logistic unit movement workflow.

3.1 Common Widget Capabilities (WH0200.01+)

The common widget capabilities of Warehouse Management have a default configuration and can be changed during workflow configuration.

3.1.1 *Widget Rendering Modes (WH0200.01.01+)*

The widget rendering shall consist of a header that is always visible and a body that can be collapsed and expanded.

The body will be automatically expanded in the **Active** mode and collapsed in the **Preview** and **Completed** modes.

This feature is provided by Modular Framework, as well as the enabling and disabling of the controls when switching between the modes.

3.1.1.1 GID-2789252 PREVIEW (WH0200.01.01.01)

In the **Preview** mode, the widget rendering shall already match the rendering of the **Active** mode, but without data the operator will enter in the widget.

All controls of the widget shall be disabled in the **Preview** mode.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	Yes

3.1.1.2 GID-2789253 ACTIVE (WH0200.01.01.02)

In the **Active** mode, the widget shall enable all controls that allow user interaction.

The current focus shall be clearly indicated in the **Active** mode.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	Yes

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3.1.1.3 GID-2789254 COMPLETED (WH0200.01.01.03)

In the **Completed** mode, the widget rendering shall match the rendering of the **Active** mode and also show the data entered during execution.

All controls of the widget shall be disabled in the **Completed** mode.

Completed summary in the header

The summary is widget-specific and shall contain a meaningful and short description of the execution result, e.g. Identified logistic unit 'LU00000042'.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	Yes

3.1.2 Special Widget Modes (WH0200.01.02+)

3.1.2.1 GID-2789256 RE-RUN WIDGET CAPABILITY (WH0200.01.02.01)

Widgets shall support re-run to correct the user input and/or to re-execute actions performed by the widget.

This shall also update the outputs of the widget into the context.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

3.1.2.2 GID-2789257 BYPASS WIDGET AWARENESS (WH0200.01.02.02)

Widgets shall support to be skipped without breaking the completed rendering due to unavailable data.

This needs to be modeled explicitly in the workflow. The default setting **Disabled**.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

3.1.2.3 GID-2789258 AUTO-COMPLETION (WH0200.01.02.03)

Widgets shall support to define a behavior how to be completed without the use of the **Complete** button, e.g. with a second scan of the same object.

In the default configuration, auto-completion is **Enabled** for widgets and workflows.

Attribute	Value
MES-Business: GxP relevance	No
MES-Business: Business Impact	None
MES-Compliance: 21 CFR Part 11 relevance	No

3.1.2.4 GID-2789259 COMPLETION CHECK FOR MANDATORY INPUT (WH0200.01.02.04)

Completion of the widget shall be prevented if mandatory data is missing.

Warehouse Management shall display an error dialog and inform the user which data is missing.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

3.1.2.5 GID-2789260 RESUME WIDGET DURING WORKFLOW RESUME (WH0200.01.02.05)

After resuming a widget, the functionality shall behave in the same way as if the processing had not been interrupted. Both status and data shall be loaded as when the operator left the widget. This applies to the status and data that was already saved by the operator, but not to transient user input.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

3.1.2.6 GID-2789261 WIDGET GRID COLUMN CAPTION ON MOBILE DEVICE (WH0200.01.02.06)

Widgets shall support to enable the display of column captions on a mobile device, if required.

In the default configuration, the caption is hidden.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	Medium
MES-Compliance: 21 CFR Part 11 relevance	No

3.1.3 UI Design Principles (WH0200.01.03+)

3.1.3.1 GID-2789263 RESPONSIVE LAYOUT AND RENDERING (WH0200.01.03.01)

The widget rendering shall be usable on a widescreen desktop client as well as on a small mobile screen with portrait screen mode.

The widget rendering shall adjust dynamically to the screen size and orientation.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

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3.1.3.2 STYLING

Typically, the widget itself does not take care of specific styling.

Modular Framework style sheets provide suitable default values for colors, fonts, margins, etc.

Only if a widget has specific needs, should you provide specific CSS rules and corresponding linkage in the code.

3.1.4 Keyboard Input and Mouse Click Behavior (WH0200.01.04+)

Depending on the object type that currently has the focus, the result of a keyboard input is different.

3.1.4.1 GID-2789266 TABULATOR (WH0200.01.04.01)

In case the TABULATOR key is used to leave an input box, the validation and action of the box is performed, and the focus is set to the next selectable object or input box.

Attribute	Value
MES-Business: GxP relevance	No
MES-Business: Business Impact	None
MES-Compliance: 21 CFR Part 11 relevance	No

3.1.4.2 GID-2789267 ENTER (WH0200.01.04.02)

The ENTER key does not trigger any action within an input box or a grid data set. In case a button has the focus, the button action is performed.

Attribute	Value
MES-Business: GxP relevance	No
MES-Business: Business Impact	None
MES-Compliance: 21 CFR Part 11 relevance	No

3.1.4.3 GID-2789268 MOUSE DOUBLE-CLICK (WH0200.01.04.03)

- Panel widget grid
A double-click on a grid data set starts the assigned workflow. Nothing is done, in case more than one workflow is assigned to the panel widget.
- Widget grid
In case the grid data sets are selectable, a double-click on a grid data set triggers the **Confirm** button of the widget.

Attribute	Value
MES-Business: GxP relevance	No
MES-Business: Business Impact	None
MES-Compliance: 21 CFR Part 11 relevance	No

- Widgets (WH0200+)
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3.1.5 Barcode Scanning Support (WH0200.01.05+)

Widgets that operate with objects that have a barcode shall support to be used in a scanner-driven way. This means the user shall be able to perform the standard functionality by only scanning barcodes instead of using the UI.

3.1.5.1 GID-2789270 SCAN TO COMPLETE (WH0200.01.05.01)

Completion of a widget shall be triggered by a barcode scan.

The barcode typically is the barcode of the related object, e.g. a logistic unit barcode.

Configurable auto-completion shall be supported for the identification by barcode scan. This can be used to avoid a second scan, hence speeding up the workflow.

Attribute	Value
MES-Business: GxP relevance	No
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

3.1.5.2 GID-2789271 SCAN OBJECT FOR IDENTIFICATION (WH0200.01.05.02)

To identify an object, barcode scanning shall be used in case the object has a barcode.

However, Warehouse Management shall always provide the alternative to enter the barcode manually for error cases, e.g. when the barcode is not readable or the barcode reader is out of order.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

3.1.6 Panel Widget-specific Features (WH0200.01.06+)

A panel widget provides a grid with that allows to start a workflow with the selected data set. The panel widget configuration differs from the widget configuration.

3.1.6.1 GID-2789273 ONE-TAP SELECTION ON MOBILE DEVICE (WH0200.01.06.01)

Panel widgets shall support to enable the selection of a list item with one tap on a mobile device, if required.

If the property is enabled and only one workflow is added to a panel widget and on the mobile device, the grid shows for each data set the one-tap button and hides the bottom panel with the workflow buttons.

Attribute	Value
MES-Business: GxP relevance	No
MES-Business: Business Impact	Low
MES-Compliance: 21 CFR Part 11 relevance	No

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3.1.6.2 GID-2789274 PANEL WIDGET GRID COLUMN CAPTION ON MOBILE DEVICE (WH0200.01.06.02)

Panel widget shall support to enable the display of column captions on a mobile device, if required.

In the default configuration, the caption is hidden.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	Medium
MES-Compliance: 21 CFR Part 11 relevance	No

3.2 Transport Order Panel Widget (WH0200.02+)

The **Transport Order Panel** widget shall support all use cases that work with an existing transport order, e.g. start a transport order or finish a transport order.

The selection of the transport order to be processed shall be very flexible and allow to be performed by scanning different barcodes, e.g. logistic unit, subplot, or transport order identifier. A filtering of the transport orders according to the area of the warehouse operator is possible by pre-configuration or user selection.

3.2.1 GID-2789276 Configuration (WH0200.02.01)

The widget provides the following optional panel widget-specific configuration:

- Source Area
- Target Area
- Filter configuration - constraint for selection:
- Transport Order Status (Ready to Start, Ready to Finish, Ready to Finish (Started Only))
- Filter configuration - sorting by:
- Transport Order Identifier
- Transport Order Planned Finish Time
- Transport Order Priority

Attribute	Value
MES-Business: GxP relevance	No
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	Yes

3.2.2 GID-2789277 Context Variables (WH0200.02.02)

Outputs

- **Current Transport Order** (with non-configurable **currentTransportOrder** value) to hold the identified or selected transport order object which shall be used by the subsequent workflow or widget.

Attribute	Value
MES-Business: GxP relevance	No
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

3.2.3 GID-2789278 Attributes (WH0200.02.03)

The list of the panel widget can be filtered by:

Name	Input	Description
Start Area *	Optional	Transport order start area, prefilled from configuration.
Target Area *	Optional	Transport order target area, prefilled from configuration.

The filter with **Start Area** and **Target Area** is shown in a collapsible section, that is initially collapsed on a mobile device.

The list of the panel widget shows the following data:

Name	Input	Description
Identifier *	Output Only	Transport order identifier
Logistic Unit / Sublot *	Output Only	Logistic unit or subplot identifier assigned to the transport order.
Start Storage Unit *	Output Only	Storage unit of the logistic unit / subplot when the transport order was created or changed.
Start Storage Zone	Output Only	Storage zone of the logistic unit / subplot when the transport order was created or changed.

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Name	Input	Description
Start Area *	Output Only	Area of the logistic unit / subplot when the transport order was created or changed.
Start Site	Output Only	Site of the logistic unit / subplot when the transport order was created or changed.
Target Storage Unit *	Output Only	Planned target storage unit if already defined.
Target Storage Zone	Output Only	Planned target storage zone.
Target Area *	Output Only	Planned target area.
Target Site	Output Only	Planned target site.
Initiator *	Output Only	Process that created the transport order.
Priority *	Output Only	Priority of the transport order.
Planned Finish Time *	Output Only	Planned finish time of the transport.

LEGEND

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Attribute	Value
MES-Business: GxP relevance	No
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

3.2.4 GID-2789279 Business Logic (WH0200.02.04)

Activation of panel widget

Step	#	Description
Activation of widget	10	Transport order data is loaded according to the defined filter and panel widget configuration.

Scan activity

Step	#	Description
Scan of a logistic unit barcode	10	If for the scanned logistic unit no transport order is listed, display an error message.
	20	If the transport order for the logistic unit is found in the list, it is pre-selected.
Scan of transport order identifier	30	If the scanned transport order is not listed, display an error message.
	40	If the transport order in the list is found for the logistic unit, it is pre-selected.
Scan of initiator	50	If no transport order with the scanned initiator is listed, display an error message.
	60	If one or more transport orders belong to the scanned initiator, reduce the list of shown transport orders accordingly and pre-select the first entry.
Scan of subplot barcode	70	If for the scanned subplot no transport order is listed, display an error message.
	80	If the transport order for the subplot is found in the list, it is pre-selected.
	90	If only one transport order is found for the scanned value and only one workflow is assigned to the panel widget, start the workflow for the transport order.
Barcode is scanned that is not described in previous steps	100	Display an error message.

Attribute	Value
MES-Business: GxP relevance	No
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

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3.3 Transport Order Create Widget (WH0200.03+)

The **Transport Order Create** widget shall support use cases that require to create a transport order to plan a movement for a logistic unit. The widget shall support the operator to find an adequate storage unit as target, depending on the predefined widget configuration, storage configuration of the payloads part, and storage constraints defined for the storage unit.

Example use cases are:

- Create a transport order for a loaded pallet after goods receipt to the high rack warehouse.
- Create a transport order to the shipping area after reserving the payloads for a goods issue.
- Ad-hoc creation of a transport order for a logistic unit and its payloads if its parts are needed in the production area.

3.3.1 GID-2789281 Configuration (WH0200.03.01)

The widget provides the following optional widget-specific configuration:

- Priority, mandatory, default: Medium
- Target Site, optional
- Target Area, optional
- Target Storage Zone, optional
- Target Storage Unit, optional

The Auto-completion (WH0200.01.02.03) property ([GID-2789258](#)) is disabled by default to allow a bypass of transport order creation. The Bypass Widget Awareness (WH0200.01.02.02) property ([GID-2789257](#)) is enabled by default at workflow level.

Attribute	Value
MES-Business: GxP relevance	No
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

3.3.2 GID-2789282 Context Variables (WH0200.03.02)

Inputs

- **Current Logistic Unit** to hold the identified logistic unit object which shall be moved with the transport order.
- **Current Logistic Unit Payload** to hold the identified subplot payload object which shall be moved with the transport order. Only required in case of **Payload Only** logistic unit.
- **Initiator Type** to hold the value to link the transport order to the initiator type.
- **Initiator Identifier** to hold the value to link the transport order to the initiator.

Outputs

- **Created Transport Order** to hold the identifier of the created transport order.

Attribute	Value
MES-Business: GxP relevance	No
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

3.3.3 *GID-2789283 Attributes (WH0200.03.03)*

Name	Input	Description
Logistic Unit to Transport * Or Sublot to Transport *	Output Only	Barcode of logistic unit. Or Sublot identifier from context input.
Target Site *	Mandatory	System suggestion. Or User input.
Target Area *	Mandatory	System suggestion. Or User input.
Target Storage Zone *	Optional	System suggestion. Or User input.
Target Storage Unit *	Optional	System suggestion. Or User input.

LEGEND

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Completed header summary

- In case the transport order has been created for a logistic unit:
<Transport Order Identifier> created for <Logistic Unit Identifier>
- In case the transport order has been created for a subplot (logistic unit of Payload only category):
<Transport Order Identifier> created for <Sublot Identifier>

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Attribute	Value
MES-Business: GxP relevance	No
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

3.3.4 *GID-2789284 Business Logic (WH0200.03.04)*

Activation of widget

Step	#	Description
Activation of widget	10	If neither a logistic unit to transport nor a subplot to transport is found in the workflow context, display an error message informing that the widget cannot be completed.
LU to transport (not Payload Only)	20	Show the LU barcode.
Payload Only LU with subplot to transport	30	Show the subplot identifier.
Auto completion is Enabled	40	Continue with the Automatic Target Selection function and the Widget Completion function.
Auto completion is Disabled	50	Continue with the Automatic Target Selection function.

Automatic target selection

Step	#	Description
TO for PO	10	If the initiator is a PO identifier (Initiator type = PickingOrder), use as target the defined PO target and exit this action.
Target suggestion by widget configuration	20	Try to prefill target with the Target Suggestion Based on Widget Configuration (WH0300.01.01) function (GID-2789333).
Target suggestion by part	30	If no widget configuration for the target exists, continue with the Target Suggestion Based on Part Configuration (WH0300.01.02) function (GID-2789334).

Manual target selection

Step	#	Description
	10	If a higher level of topology is already set, the selection element provides only values that belong to the higher level.
Target Storage Unit is selected	20	Set target site, target area, and target zone that belong to the selected target storage unit.
Target Storage Zone is selected	30	Set target site and target area that belong to the selected target storage zone.
Target Area is selected	40	Set target site that belong to the selected target storage unit.

Widget completion

Step	#	Description
Auto completion, through scan of LU barcode or [Confirm]	10	If neither a logistic unit to transport nor a subplot to transport is found in the workflow context, display an error message informing that the widget cannot be completed.
	20	If either target site or target area is not set, display an error message informing that the widget cannot be completed.
	30	In case the Transport Order Creation Check (WH0300.01.03) function fails, display an error message informing that the widget cannot be completed.
	40	Increase Expected Number of LUs of the planned target storage unit by 1.
	50	If no error has occurred, the transport order is created with the following settings: Status is set to Created . Priority is set to the value of the widget configuration. Start Site, Area, Storage Zone, Storage Unit are set to the current values of the logistic unit linked to the transport. Target values are set as defined by widget data. Creation Time is set to current time, Creation User to the logged-in user. Initiator Type is set according to the workflow context, if available. Initiator is set according to the Initiator Identifier input variable. The widget is completed.

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Attribute	Value
MES-Business: GxP relevance	No
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

3.4 Transport Order Start Widget (WH0200.04+)

The **Transport Order Start** widget shall support use cases that have created transport orders to plan movements for logistic units. The operator should be assisted in finding the next transport to be executed (see Transport Order Panel (WH0200.02+) widget ([GID-2789275](#))). With the start of the transport order it is visible for all operators that the transport is being processed by an operator.

An example use case is:

- A warehouse operator starts a transport order for a loaded pallet after goods receipt and after the pallet has been loaded onto the forklift.

3.4.1 GID-2789286 Configuration (WH0200.04.01)

The Auto-completion (WH0200.01.02.03) property ([GID-2789258](#)) is disabled by default to allow the operator to stop starting after reviewing the selected transport order.

Attribute	Value
MES-Business: GxP relevance	No
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

3.4.2 GID-2789287 Context Variables (WH0200.04.02)

Inputs

- **Current Transport Order** to hold the identified or selected transport order object which shall be started.

Attribute	Value
MES-Business: GxP relevance	No
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

3.4.3 GID-2789288 Attributes (WH0200.04.03)

Name	Input	Description
Transport Order Identifier *	Output Only	The selected transport order to start.
Logistic Unit Identifier * Or Sublot *	Output Only	Logistic unit identifier to transport. Or Sublot identifier to transport in case LU is of Payload Only category.
Target Site *	Output Only	Target site defined during transport order creation or modification.
Target Area *	Output Only	Target area defined during transport order creation or modification.
Target Storage Zone *	Output Only	Target storage zone identifier defined during transport order creation or modification.
Target Storage Unit *	Output Only	Target storage unit identifier defined during transport order creation or modification.

LEGEND

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Completed header summary

- In case the transport order has been created for a logistic unit:
<Transport Order Identifier> started for <Logistic Unit Identifier>
- In case the transport order has been created for a subplot (logistic unit of **Payload only** category):
<Transport Order Identifier> started for <Sublot Identifier>

Attribute	Value
MES-Business: GxP relevance	No
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

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3.4.4 GID-2789289 Business Logic (WH0200.04.04)

Activation of widget

Step	#	Description
Activation of widget	10	If no transport order is found in the workflow context, display an error message informing that the widget cannot be completed.
	20	Show the transport order identifier.
LU to transport (not Payload Only)	30	Show the logistic unit identifier.
Payload Only LU with subplot to transport	40	Show the subplot identifier.
Auto completion is Enabled	50	Continue with the Widget Completion function.

Widget completion

Step	#	Description
Auto completion is Enabled, through scan of LU barcode or TO identifier or with [Confirm]	10	If no transport order is found in the workflow context, display an error message informing that the widget cannot be completed.
	20	If the transport order is not in the Created status, display an error message informing that the widget cannot be completed.
Execute TO Start checks	30	If the Transport Order Start Check (WH0300.01.05) function (GID-2789337) fails, the widget completion is aborted with an error message.
	40	If no error has occurred, the transport order is started with the Transport Order Start Action function (GID-3650939). The widget is completed.

- Widgets (WH0200+)
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Attribute	Value
MES-Business: GxP relevance	No
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

3.5 Transport Order Finish Widget (WH0200.05+)

The **Transport Order Finish** widget shall support use cases that have created transport orders or already started transport orders to plan movements for logistic units. The operator should be assisted to find the transport to finish (see Transport Order Panel (WH0200.02+) widget ([GID-2789275](#))). When a transport order is finished, the logistic unit is moved from its current storage unit to the new target.

An example use case is:

- A warehouse operator finishes a started transport order that was initiated for a pallet after goods receipt. After scanning the target storage unit (of the transport order to be finished), the operator unloads the pallet from the forklift.

3.5.1 GID-2789291 Configuration (WH0200.05.01)

The Auto-completion (WH0200.01.02.03) property ([GID-2789258](#)) is disabled by default to allow the operator to select a different target storage unit other than the planned one.

Attribute	Value
MES-Business: GxP relevance	No
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

3.5.2 GID-2789292 Context Variables (WH0200.05.02)

Inputs

- **Current Transport Order** to hold the identified or selected transport order object which shall be finished.

Attribute	Value
MES-Business: GxP relevance	No
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

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3.5.3 GID-2789293 Attributes (WH0200.05.03)

Name	Input	Description
Transport Order Identifier *	Output Only	The selected transport order to finish.
Logistic Unit Identifier * Or Sublot *	Output Only	Logistic unit identifier to transport. Or Sublot identifier to transport in case LU is of Payload Only category.
Target Site *	Output Only	Target site defined during transport order creation or modification.
Target Area *	Output Only	Target area defined during transport order creation or modification.
Target Storage Zone *	Output Only	Target storage zone identifier defined during transport order creation or modification.
Target Storage Unit *	Output Only	Target storage unit identifier defined during transport order creation or modification.
Finish Storage Unit Barcode *	Mandatory	Prefilled with the barcode of the planned target storage unit.

LEGEND

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Completed header summary

- In case the transport order has been finished for a logistic unit:
<Transport Order Identifier> finished for <Logistic Unit Identifier>
- In case the transport order has been finished for a subplot (logistic unit of **Payload only** category):
<Transport Order Identifier> finished for <Sublot Identifier>

Attribute	Value
MES-Business: GxP relevance	No
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

3.5.4 GID-2789294 Business Logic (WH0200.05.04)

Activation of widget

Step	#	Description
Activation of widget	10	If no transport order is found in the workflow context, display an error message informing that the widget cannot be completed.
	20	Show the transport order identifier.
LU to transport (not Payload Only)	30	Show the logistic unit identifier.
Payload Only LU with subplot to transport	40	Show the subplot identifier.
		If the transport order has a target storage unit defined, prefill the field for the Finish Storage Unit Barcode with the barcode of the planned target storage unit.
Auto completion is Enabled	60	Continue with the Widget Completion function.

Change of finish storage unit

Step	#	Description
Scan storage unit barcode or enter a finish storage unit barcode different to previous one	10	If no storage unit for the barcode is found, display an error message informing that the widget cannot be completed.
Scan a storage unit barcode equal to the finished storage unit barcode	20	Continue with the Widget Completion function.

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Widget completion

Step	#	Description
Auto completion is Enabled, through scan of finish storage unit barcode or with [Confirm]	10	If no transport order is found in the workflow context, display an error message informing that the widget cannot be completed.
	20	If the Finish Storage Unit barcode is not set or does not belong to an existing storage unit, display an error message informing that the widget cannot be completed.
	30	If the transport order is not in the Created or Started statuses, display an error message informing that the widget cannot be completed.
	40	If no error has occurred, the transport order is finished. Continue with the Transport Order End Actions (WH0300.01.04) function (GID-2789336). If no error has occurred, the widget is completed.

Attribute	Value
MES-Business: GxP relevance	No
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

3.6 Picking Order Panel Widget (WH0200.06+)

The **Picking Order Panel** widget shall support all use cases that work with an existing picking order, e.g. execute the picking process.

The selection of the picking order to be processed shall be very flexible and allow to be performed by scanning different barcodes, e.g. a picking order initiator.

3.6.1 GID-2789296 Configuration (WH0200.06.01)

The widget provides the following optional panel widget-specific configuration:

- Filter configuration - constraint for selection:
- Picking Order Status (**Ready for Picking**, applies to the **Released** and **Started** statuses, **Ready for Transport**, applies to the **Picked** status)
- Filter configuration - sorting by:
- Picking Order Identifier

- Picking Order Initiator
- Picking Order Due Date

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	Yes

3.6.2 *GID-2789297 Context Variables (WH0200.06.02)*

Outputs

- **Current Picking Order** (with non-configurable **currentPickingOrder** value) to hold the identified or selected picking order object, which shall be used by the subsequent workflow or widget.
- **Initiator Type of Picking Order** to provide the fixed **PickingOrder** value, which can be used by the subsequent workflow or widget.
- **Current Picking Order Identifier** to hold the identified or selected picking order identifier, which can be used by the subsequent workflow or widget.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

3.6.3 *GID-2789298 Attributes (WH0200.06.03)*

The list of the panel widget shows the following data:

Name	Input	Description
Identifier *	Output Only	Picking order identifier
Status *	Output Only	Picking order status
Initiator *	Output Only	Initiator stored with picking order
Initiator Type	Output Only	Initiator type stored with picking order
Target Storage Unit	Output Only	Target storage unit for the picked stock
Target Storage Zone	Output Only	Target storage zone for the picked stock

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Name	Input	Description
Target Area *	Output Only	Target area for the picked stock
Due Date *	Output Only	Due date by which picking order should be finished

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Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

3.6.4 GID-2789299 Business Logic (WH0200.06.04)

Activation of panel widget

Step	#	Description
Activation of widget	10	Picking order data is loaded according to the defined filter and panel widget configuration.

Scan activity

Step	#	Description
Scan of a picking order identifier barcode	10	If a picking order for the scanned identifier is found in the list, it is pre-selected. Continue with step 30.
Scan of picking order initiator	20	If a picking order belongs to the scanned initiator and is found in the list, it is pre-selected.
	30	If only one picking order was found for the scanned value and only one workflow is assigned to the panel widget, start the assigned workflow for the picking order. The panel widget is completed.

Step	#	Description
Barcode is scanned that is not described in previous steps	40	If no picking order was found for the scanned value in the list, display an error message.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

3.7 Picking Order Position Selection Widget (WH0200.07+)

The **Picking Order Panel** widget shall support all use cases that require to select a picking order position of a given picking order. The widget shall support the operator to process not yet picked positions.

Example use cases are:

- Allow selection of a picking order position to pick payloads according to quantities required by an MES order.
- Allow selection of a picking order position to pick payloads required to refill a storage unit with specific part and quantity.

3.7.1 GID-2789301 Configuration (WH0200.07.01)

The following widget-specific property settings are available:

Column Caption Displayed on Mobile Devices: Widget shall support to enable the display of column captions of the picking order position grid on a mobile device, if required. In the default configuration, the captions are hidden.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

3.7.2 GID-2789302 Context Variables (WH0200.07.02)

Inputs

- **Current Picking Order** to hold the identified picking order object for which the not yet picked positions shall be shown.

Outputs

- **Selected Picking Order Position** that should be processed by the subsequent widget.
- **Bypassed** is set to *true* if the widget was skipped with the **Bypass** button. Default is *false*.

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- **Position has Open Quantity** (with the non-configurable **hasOpenPositionQuantity** value) is set to *true* as long the required quantity is higher than the picked quantity of the selected position, otherwise is it set to *false*.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	Yes

3.7.3 GID-2789303 Attributes (WH0200.07.03)

Name	Input	Description
No *	Output Only	Number of position
Part [Name.Revision] *	Output Only	Required part for position
Batch *	Output Only	Allowed batch(es) for position
Picked Quantity *	Output Only	Already picked quantity for position
Required Quantity *	Output Only	Defined required quantity for position
Status	Output Only	Status of position

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Headline

- Instead of the widget name:
<Picking Order Identifier> for <Picking Order Initiator>

Completed header summary

- In addition to the headline:
<Picking Order Position number> - <Open position quantity>
Open position quantity = Required Quantity – Picked Quantity (if negative, 0 is shown)

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

3.7.4 GID-2789304 Business Logic (WH0200.07.04)

Activation of widget

Step	#	Description
Activation of widget	10	Display all positions of the Current Picking Order with a status other than Picked .
	20	If status of Current Picking Order is already Picked , check if status needs to be updated with the Picking Order Status Check and Update (WH0300.04.01) function (GID-2789350).

Widget completion

Step	#	Description
User confirmed widget	10	If no picking order position is selected, display an error message informing that the widget cannot be completed.
	20	If no error has occurred, the output variable is set. The widget is completed.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

3.8 Stock List Widget (WH0200.08+)

The **Stock List** widget shall support use cases that require the selection of a payload for further processing. It shall be possible to limit the selectable payloads by batch status and it shall be possible to exclude additional payloads from specific storage zones or areas. The sorting of the payload list shall be done according to defined rules and configurable rules.

Example use cases are:

- Display available payloads of a specific part or batch and allow its selection to fulfill the required quantity for a picking order position.

3.8.1 GID-2789306 Configuration (WH0200.08.01)

The widget provides the following optional widget-specific configuration:

- Allowed Batch Statuses:
- Blocked

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- Quarantined
- Released (default)
- Allowed Sublot Statuses:
- Not Defined (default)
- Blocked
- Quality Inspection
- Unrestricted (default)

All values of the **SublotStatus** choice list and **Not Defined** are selectable.

- Excluded Storage Zones:
- List of Storage Zones
- Excluded Areas:
- List of Areas

TIP

The lists of Areas and Storage Zones to be excluded use commas (",") to separate their values. In case a customer uses this separator character as part of Area or Storage Zone Names, the separator needs to be changed by localization.

- Sorting Rule to use:
 - FIFO (default): payload creation date, in ascending order
 - FEFO: batch expiry date, ascending, payload quantity, in ascending order
 - SQFO: payload quantity, in ascending order
 - MQFO: exact open quantity first, afterwards payloads with a lower quantity than the open quantity, in descending order, afterwards all others sorted by quantity in ascending order
- Exclude payloads on LUs with active TO:
If enabled, the widget will suppress displaying payloads on logistic units that have an active transport order. In the default configuration, it shall be disabled.

The following widget-specific property settings are available:

Column Caption Displayed on Mobile Devices: Widget shall support to enable the display of column captions of the picking order position grid on a mobile device, if required. In the default configuration, the captions are hidden.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

3.8.2 GID-2789307 Context Variables (WH0200.08.02)

Inputs

- **Current Picking Order Position** to hold the selected picking order position object for which the payloads shall be shown.
- **Part** of the payloads to which the payload list is limited.
- **List of Batches** with identifiers to which the payload list is limited (optional).
- **Requested Quantity** needed for sorting rules and user information (optional, depending on rule).

Only if the **Current Picking Order Position** input is not provided, are the other input variables used by the widget.

Outputs

- **Selected Payload** that should be processed by the subsequent widget. It is set to *null* if widget is bypassed.
- **Bypassed**, which can be processed by the subsequent widget or condition. It is set to *true* if the widget is bypassed. Default is set to *false*.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	Yes

3.8.3 GID-2789308 Attributes (WH0200.08.03)

Name	Input	Description
Sublot *	Output Only	Identifier of the subplot
Batch *	Output Only	Batch identifier of the payload
Quantity *	Output Only	Current quantity of the payload
Logistic Unit *	Output Only	LU identifier of the payload
Storage Unit *	Output Only	Storage unit name of the payload
Storage Zone	Output Only	Storage zone name of the payload
Area	Output Only	Area name of the payload
Site	Output Only	Site name of the payload

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Headline

- Instead of the widget name:
`<[Part] Name.Revision> - <Open Quantity>`
 (Open Quantity is calculated by Requested Quantity of PO position - Picked Quantity of PO position. If more was picked than requested, 0 quantity is displayed).

Completed header summary

- In addition to the headline the selected subplot is displayed:
 Sublot: `<Sublot Identifier>`

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

3.8.4 GID-2789309 Business Logic (WH0200.08.04)

Activation of widget

Step	#	Description
Activation of widget	10	Retrieve all payloads of the required part and allowed batches.
	20	Exclude payloads of non-configured batch statuses.
	25	Exclude payloads of non-configured subplot statuses.
	30	Exclude payloads of areas configured to exclude.
	40	Exclude payloads of storage zones configured to exclude.
	50	If the widget's the Exclude payloads on LUs with active TO property is enabled, payloads that reside on a logistic unit with an active transport order (down to the root LU) are excluded.

Step	#	Description
	60	Only in case the Current Picking Order Position is provided: Exclude all payloads that reside on an LU that has an assignment to a non-finished PO (open transport). Since LUs can be stacked, this has to be checked down until the root LU.
	70	Depending on the configured sorting rule, the payload list is sorted and displayed.

Payload selection

Step	#	Description
User selects a payload or scans a subplot from the list	10	If the payload is listed in the list, this row of the list is marked as selected.
	20	If the scanned payload does not exist or is not available in the list, display an error message informing about it.

Widget completion

Step	#	Description
User confirmed widget or scans the selected payload	10	If no payload is selected, display an error message informing that the widget cannot be completed.
	20	Check if the subplot would be available if the widget were activated at that time. If not, display an error message informing that the widget cannot be completed.
	30	If no error has occurred, the output variable is set. The widget is completed.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

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3.9 Picking Widget (WH0200.09+)

The **Picking** widget shall support use cases to simplify collecting the required stock for a picking order position.

Example use cases are:

- Allow to split a subplot to pick only the required quantity.
- Allow to identify a target logistic unit to collect the picked parts.
- Allow to pick a subplot as it is, even if the required quantity is lower.

3.9.1 Configuration

No widget-specific configuration is available.

3.9.2 GID-2789312 Context Variables (WH0200.09.02)

Inputs

- **Current Picking Order Position** to hold the previously selected picking order position for which the payload shall be shown.
- **Current Payload** to hold the previously selected payload that shall be partly or completely picked.

Outputs

- **Identified Target Logistic Unit** to hold the identified logistic unit for the picked payload.
- **Open Position Quantity** to hold the quantity that still is missing to complete the current picking order position.
- **Position Has Open Quantity** (with the non-configurable **hasOpenPositionQuantity** value) is set to *true* if the **Open Position Quantity** is greater than 0. Otherwise it is set to *false*.
- **Picking Completed** is set to allow a decision dependent on the status of the current picking order.
- **Transport Order Required** is set to *true* if the identified target logistic unit does not have a transport order yet and is not already located at the target of the picking order. Otherwise it is set to *false*.
- **Bypassed**, which can be processed by the subsequent widget or condition. It is set to *true* if the widget is bypassed. Default is set to *false*.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	Yes

3.9.3 GID-2789313 Attributes (WH0200.09.03)

Name	Input	Description
Source Payload - Logistic Unit Barcode *	Output Only	Empty if logistic unit is of the Payload Only category
Sublot Batch Part Quantity *	Output Only	Data of the source payload
Open Quantity *	Output Only	Prefilled, Required minus already picked quantity (not below 0)
Split Quantity *	Output Only	Prefilled, If source payload quantity > open quantity: open quantity Else: 0
Return Quantity *	Output Only	Prefilled, Payload quantity minus open quantity (not below 0)
Target Logistic Unit Barcode *	Edit or scan	Initially empty, Target logistic unit for payload
Target Logistic Unit Contents *	Output Only	Load of identified target logistic unit

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Headline

- Instead of the widget name:
<PO Identifier> - <PO Position No.>

Completed header summary

- In addition to the headline:
Target: <Target Logistic Unit Identifier>

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

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3.9.4 GID-2789314 Business Logic (WH0200.09.04)

Activation of widget

Step	#	Description
Activation of widget	10	Retrieve all source payload and picking order position data.
Data error	20	If payload or picking order position is not available, display an error message informing about it. The widget needs to be bypassed. Otherwise continue with next step.
	30	Display source payload data.
	40	Calculate and display quantity data.
	50	Only if the split quantity > 0, display the Split button.

Target logistic unit identification

Step	#	Description
User enters or scans a logistic unit barcode	10	If no logistic unit with this barcode exists, display an error message informing about it. The Target logistic unit identification action is aborted.
LU with active TO	20	If the logistic unit has an active transport order that does not belong to the current picking order (TO initiator = PO Identifier and TO Initiator Type = Picking Order), display an error message informing about it. The Target logistic unit identification action is aborted.
LU already assigned to different PO	30	If the logistic unit is assigned to a picking order that differs from the current picking order and is neither finished nor aborted, and the logistic unit either has no transport order or an active transport order for this (different) picking order, display an error message informing about it. The Target logistic unit identification action is aborted.
	40	Load and display the target logistic unit data.

Check other load of the target logistic unit

Step	#	Description
Target LU is not part of the PO's open transports	10	If the source payload is the only load of the target logistic unit, the action returns with success. Otherwise the system requests the user to confirm that further payloads on the target logistic unit are picked.
	20	If the user cancels the confirmation to identify another target logistic unit, the action returns as failed.

Pick other load of the target logistic unit

Step	#	Description
User confirmed to pick other load	10	If the user accepts the confirmation, the system tries to pick all payloads on the target logistic unit and all of its child LUs excluding the source payload. If a PO position is not already in the Picked status, the picked quantity will be increased by the sum of the allowed payloads. Payloads with a non-planned batch or part are ignored. A payload is only assigned to one picking position.

Widget completion by Split

Step	#	Description
User confirmed split operation	10	If no target logistic unit is identified, display an error message informing about it. The Widget completion by Split action is aborted.
	20	If the target logistic unit is not the LU of the source payload: The widget shall execute the Check payload movement (WH0300.02.06) function (GID-2789346) successfully before moving the source payload to the target logistic unit. If the check fails, the widget cannot be completed.
	30	If the target logistic unit is not already assigned to the open transports of the picking order: Execute the Check other load of the target logistic unit action. If the action does not return with success, the widget cannot be completed.
	40	Split the subplot: <ul style="list-style-type: none"> ▪ Consume from source subplot.

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Step	#	Description
		<ul style="list-style-type: none"> ▪ Create a new subplot on target logistic unit. ▪ Print a subplot label. ▪ Determine the subplot status with the Sublot Status at Creation (WH0300.05.01) function (GID-2789352). ▪ Transaction history data: Transaction Process = Picking Order Transaction Process Reference = PO identifier Transaction Purpose = Initiator type of PO Transaction Detail = PO initiator
	50	If the user confirmed to pick further available payloads with the Check other load of the target logistic unit action, execute the Pick other load of the target logistic unit action.
	60	The picked quantity of the PO position is increased by the split quantity.
	70	If the target logistic unit is the logistic unit of the source payload: The picked quantity of a matching non-picked PO position is increased by the new reduced source subplot quantity.
	80	Call the widget completion action.

Widget completion by Confirm

Step	#	Description
User confirmed widget	10	If no target logistic unit is identified, display an error message informing that the widget cannot be completed.
Request confirmation to ignore split	20	If the split quantity > 0, the system requests a confirmation from the user to pick the complete subplot. If the user cancels the confirmation, the widget completion is aborted. If the user accepts the confirmation, the split quantity is ignored. Continue with the next step.
	30	If the target logistic unit is not already assigned to the open transports of the picking order: Execute the Check and pick other load of target logistic unit action. If the action does not return with success, the widget cannot be completed.

Step	#	Description
	40	If the target logistic unit is not already the LU of the source payload: The widget shall execute the Check payload movement (WH0300.02.06) function (GID-2789346) successfully before moving the source payload to the target logistic unit. If the check fails, the widget cannot be completed. Additional Transaction history data: <ul style="list-style-type: none">▪ Transaction Process = PickingOrder▪ Transaction Process Reference = PO identifier▪ Transaction Purpose = Initiator type of PO▪ Transaction Detail = PO initiator
	50	The picked quantity is increased by the source payload quantity for the PO position.
	60	Call the widget completion action.

Widget completion

Step	#	Description
	10	For all PO positions with updated picked quantity and in the Created status, set the status to Started .
	20	If the open quantity of a PO position is now 0, the position status is set to Picked .
	30	If all PO positions have the Picked status, set the PO status to Picked .
	40	The target logistic unit is assigned to the open transports of the current PO.
	50	If no error has occurred, the output variable is set. The widget is completed.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	Yes

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3.10 Logistic Unit Payload Scan Widget (WH0200.10+)

The **Logistic Unit Payload Scan** widget shall support use cases that need an identified payload e.g. a subplot for further processing.

An example use case is:

- A warehouse operator wants to move a subplot from a logistic unit to another logistic unit or a storage unit.

3.10.1 GID-2789316 Configuration (WH0200.10.01)

The Auto-completion (WH0200.01.02.03) property ([GID-2789258](#)) is enabled by default. It can be disabled to allow the operator to scan a different payload before confirming the widget.

In case Auto-completion is enabled, scanning a payload or a logistic unit with only one payload as direct child confirms the widget automatically.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

3.10.2 GID-2789317 Context Variables (WH0200.10.02)

Inputs

- **Current Logistic Unit Payload** to hold the identified or selected payload object.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

3.10.3 GID-2789318 Attributes (WH0200.10.03)

Name	Input	Description
Logistic Unit / Payload Barcode *	Edit or scan	Initially empty.
Part [Name][.Revision] *	Output Only	Part of the payload.
Part Description *	Output Only	---
Batch *	Output Only	Batch of the payload.
Sublot [Identifier] *	Output Only	Sublot of the payload.

Name	Input	Description
Sublot Status *	Output Only	Sublot status of the payload.
Quantity *	Mandatory	Quantity of the payload.

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Completed header summary

- In case a payload was identified or selected:
Identified payload: <Logistic Unit Identifier> | <Sublot Identifier> | <Batch> | <Part Name.Revision> | <Payload Quantity>

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

3.10.4 GID-2789319 Business Logic (WH0200.10.04)

Activation of widget

Step	#	Description
Activation of widget	10	The field for the Logistic Unit / Payload Barcode is editable and empty.
	20	The list of payloads is empty.

Barcode scanned

Step	#	Description
	10	If the barcode does not belong to a logistic unit or a subplot, the field is marked as invalid.

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Step	#	Description
Logistic unit is scanned	20	The list displays all payloads that are direct children of the logistic unit.
Sublot is scanned	30	The list displays the payload data of the scanned subplot.

Widget completion

Step	#	Description
Auto-completion is Enabled	10	If a subplot barcode is entered, the widget confirms automatically.
	20	If a logistic unit barcode is entered and the logistic unit has only one subplot as direct child, the widget confirms automatically.
Confirm button is pressed	30	If no valid logistic unit or subplot barcode was entered before, the widget completion is aborted with an error message.
	40	If a valid barcode was entered before, but no item of the list is selected, the widget completion is aborted with an error message.
	50	If no error has occurred, the widget is completed.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

3.11 Further Widget Requirements

The following widgets are specified in detail in the related Integrated Design Specification.

3.11.1 Goods Issue Widgets

3.11.1.1 GID-3108740 GOODS ISSUE PANEL (WH-90)

The **Goods Issue Panel** panel widget is a standard panel widget with all required GI columns. It is used by the GI Reservation widget and GI Shipping widget to select the goods issue in order to reserve payloads or ship LUs with their payloads.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

3.11.1.2 GID-3108741 GOODS ISSUE LU RESERVATION WIDGET (WH-92)

With the **Goods Issue LU Reservation widget** the payloads of a LU are reserved to the GI positions of a GI in a reservation-ready status (in a standard system: **Released**).

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

3.11.1.3 GID-3108759 GOODS ISSUE SHIPPING WIDGET (WH-96)

With the Goods Issue Shipping widget all logistic units with their reserved payloads are removed from the inventory of a warehouse. The GI must be in a shippable status (in a standard system: Reserved or In progress).

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

3.11.1.4 GID-3108760 GOODS ISSUE SHIPPING RESTRICTIONS (WH-596.6)

Shipping shall not be allowed in case any involved logistic unit has a transport order in an active status (Created or Started).

Attribute	Value
MES-Business: GxP relevance	No
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

3.11.2 Goods Receipt Position Processing Widget

3.11.2.1 GID-3108762 MULTIPLE SUBLOTS (WH-102.6)

As an operator, I want to **create multiple sublots** during processing of a goods receipt position because typically the material of a position shall be portioned in a meaningful way.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

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3.11.2.2 GID-3108763 MULTIPLE LOGISTIC UNITS (WH-102.7)

As an operator, I want to create **multiple logistic units** during processing of a goods receipt position, so that I can, for example, distribute larger quantities to a suitable number of pallets or place exactly one subplot on each pallet.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

3.11.2.3 GID-3108764 IDENTITY AN EXISTING LOGISTIC UNIT (WH-102.8)

As an operator, I want to **identify an existing logistic unit** in order to place the material onto it during processing of a goods receipt position, so that I can use pre-labeled pallets or re-use permanent stainless steel pallets.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

3.11.2.4 GID-3108766 POST THE STOCK ENTRY AND PRINT LABELS (WH-102.9)

As an operator, I want to **post the stock entry and print labels** already during processing of a goods receipt position, so that I can place the labels on the current material and see it in the stock right away.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

3.11.2.5 GID-3108767 GOODS RECEIPT POSITION PROCESSING WIDGET (WH-102.10)

The **Goods Receipt Position Processing widget** allows to receive material for a goods receipt position by creating sublots on logistic units.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

- Widgets (WH0200+)
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3.11.2.6 GID-3108769 GOODS RECEIPT POSITION PROCESSING RESTRICTIONS (WH-596.4)

A target logistic unit with a transport order in the **Started** status is not allowed.

Attribute	Value
MES-Business: GxP relevance	No
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

3.11.2.7 GID-3108770 CHECK TARGET STORAGE CONDITIONS (WH-860.5)

The widget shall execute the **Check Target Storage Conditions (WH0300.02.07)** function ([GID-2789340](#)) successfully against the new payloads.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

3.11.2.8 GID-3108771 GOODS RECEIPT POSITION SUPPLIER (WH-1027.1)

The supplier provided in the goods receipt position data shall be stored with the received batch. If it conflicts with existing batch data, the goods receipt shall fail.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

3.11.2.9 GID-3619025 ATTRIBUTES

Name	Input	Description
Number [Goods Receipt Position] Part Description [Part] Batch *	R	Batch number only displayed if already known, else "---".
Received / Expected Quantity *	R	---
Number of Sublots *	M	Prefilled, initially with 1. In loop for the same position prefilled with last value.
Quantity per Sublot *	M	Prefilled, initially with Expected Quantity - Received Quantity. In loop for the same position prefilled with last value.

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Name	Input	Description
Target Logistic Unit Barcode *	O	Initially empty. If not provided a new logistic unit for payload will be created.
Target Logistic Unit Contents *	R	Load of identified target logistic unit.
Temperature Range *	R	Min .. Max of all TRs defined for the part.
Initial Time	O	Duration of all TRs. If provided, used as starting value for the TITR value of the newly created sublots. Initially empty. In loop for the same position prefilled with last value.

LEGEND

*=visible on a mobile device

M=mandatory; R=read-only; I=insert only and mandatory; O=optional

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

3.11.2.10 GID-3619054 Goods Receipt Cold Chain Data Initialization

This function describes which CCT data is created and initialized during goods receipt for the new sublots.

Step	#	Description
	10	In case no value or 0 is provided for the initial TITR counter value, the TITR counters are initialized as described with Cold Chain Data Initialization at Sublot Creation <u>(GID-3393921)</u> .

Step	#	Description
TITR counter with Initial time != 0	20	<p>Create a cold chain history data set (counter) and set following data:</p> <ul style="list-style-type: none"> ▪ Temperature Range ▪ Action (Entered) = Goods Receipt ▪ Storage Unit (Entered) = EMPTY (not set) ▪ Timestamp (Entered) = EMPTY (not set) ▪ Timestamp (Left) = EMPTY (not set) ▪ Cumulated Time = Initial time ▪ User Name = login name of current user
Start a TITR counter with Initial time != 0	30	<p>If the temperature range is equal with or overlaps the temperature range of the new subplot's storage unit, create a further cold chain history data set (counter) and set following data:</p> <ul style="list-style-type: none"> ▪ Temperature Range ▪ Action (Entered) = Goods Receipt ▪ Storage Unit (Entered) = subplot's storage unit ▪ Timestamp (Entered) = current time ▪ Timestamp (Left) = EMPTY (not set) ▪ Cumulated Time = Cumulated Time of previous entry (not visible) ▪ User Name = login name of current user

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

3.11.3 Goods Receipt Position Selection Widget

3.11.3.1 GID-3108772 GOODS RECEIPT POSITION SELECTION WIDGET (WH-102.5)

The Goods Receipt Position Selection widget allows to select a goods receipt position from the list of open positions.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

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3.11.3.2 GID-3108774 GOODS RECEIPT POSITION SELECTION WIDGET DATA (WH-865.1)

The widget should display further data:

- Supplier of the batch
- Part configuration if sampling is required and the sampling type

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

3.11.4 Goods Receipt One-step Processing

3.11.4.1 GID-3108776 GOOD RECEIPT PROCESSING (WH-3.1)

As an operator, I want to perform a **goods receipt** on my mobile device with a scanner, so that the arriving goods are acknowledged in the warehouse system.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

3.11.4.2 GID-3108781 MISSING POSITIONS (WH-3.2)

As an operator, I want to record **missing positions**, so that the office workers can follow up on missing items.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

3.11.4.3 GID-3108782 ENHANCED GOODS RECEIPT PROCESSING (WH-101.3)

The **enhanced Goods Receipt Processing** shall include usability enhancements and an enhanced state handling.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

3.11.4.4 GID-3108783 CHECK TARGET STORAGE CONDITIONS (WH-860.4)

The widget shall execute the **Check Target Storage Conditions (WH0300.02.07)** function [\(GID-2789340\)](#) successfully against the new payloads.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

3.11.4.5 GID-3108784 DISPLAY FURTHER DATA (WH-865.2)

The widget should display further data:

- Supplier of the batch
- Part configuration if sampling is required and the sampling type

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

3.11.4.6 GID-3108785 GOODS RECEIPT POSITION SUPPLIER (WH-1027.2)

The supplier provided in the goods receipt position data shall be stored with the received batch. If it conflicts with existing batch data, the goods receipt shall fail.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

3.11.5 Print Goods Receipt Labels

3.11.5.1 GID-3108786 PRINT LOGISTIC UNIT LABELS (WH-4.1)

As an operator, I want to print logistic unit labels containing a GS1-compliant barcode for received goods, at the end of the goods receipt workflow, so that I can identify the goods for further processing.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

3.11.5.2 GID-3108787 PRINT SUBLot LABELS (WH-4.2)

As an operator, I want to print subplot labels containing an MES-compliant barcode for received goods at the end of the goods receipt workflow, so that I can identify the goods for further processing. Contained detail information is subplot ID, batch, material ID, material description.

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Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

3.11.6 Logistic Unit Move Widget

3.11.6.1 GID-3108788 MOVEMENT OF LOGISTIC UNIT (WH-80.1)

As an operator, I want to report the **movement of a logistic unit** and its content to another target storage unit, so that this is correctly reflected in the stock records.

Attribute	Value
MES-Business: GxP relevance	No
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

3.11.6.2 GID-3108789 REMOVE A CHILD LOGISTIC UNIT FROM ITS PARENT LOGISTIC UNIT (WH-80.2)

As an operator, I want to **remove a child logistic unit from its parent logistic unit** and place it onto a target storage unit, so that it becomes an own root logistic unit for separate movement/usage.

Attribute	Value
MES-Business: GxP relevance	No
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

3.11.6.3 GID-3108790 PUT A LOGISTIC UNIT ONTO A TARGET LOGISTIC UNIT (WH-80.3)

As an operator, I want to **put a logistic unit onto a target logistic unit**, so that it becomes a nested child of the parent logistic unit to allow grouped movement.

Attribute	Value
MES-Business: GxP relevance	No
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

3.11.6.4 GID-3108791 MOVE A CHILD LOGISTIC UNIT (WH-80.4)

As an operator, I want to **move a child logistic unit onto a target logistic unit**, so that it becomes a nested child of the target logistic unit to allow grouped movement.

Attribute	Value
MES-Business: GxP relevance	No
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

3.11.6.5 GID-3108792 SOURCE LU CONFIGURATIONS (WH-596.7)

The widget provides a configuration that allows **source LUs or a source LU with child LUs and an active transport order**.

Attribute	Value
MES-Business: GxP relevance	No
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

3.11.6.6 GID-3108793 CHECK LOGISTIC UNIT MOVEMENT (WH-860.1)

In case the storage unit of the logistic unit is changed, the widget shall execute the **Check Logistic Unit Movement (WH0300.02.05)** function ([GID-2789345](#)) successfully before moving the logistic unit.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

3.11.7 Logistic Unit Scan Widget

3.11.7.1 GID-3108794 IDENTIFY A LOGISTIC UNIT (WH-79.1)

As an operator, I want to identify a logistic unit by scanning its barcode or enter the barcode manually to be able to use the LU within further widgets of a workflow.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

3.11.8 Logistic Units Create Widget

3.11.8.1 GID-3108796 LOGISTIC UNITS CREATE WIDGET (WH-381.1)

The Logistic Units Create widget allows to create the specified number of temporary logistic units.

Attribute	Value
MES-Business: GxP relevance	No
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

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3.11.8.2 GID-3108797 PRINT LOGISTIC UNIT LABEL (WH-381.2)

The system shall print a label for each created logistic unit.

Attribute	Value
MES-Business: GxP relevance	No
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

3.11.8.3 GID-3108799 CREATE LOGISTIC UNITS (WH-381.3)

The system shall allow to create between 1 and 99 logistic units.

Attribute	Value
MES-Business: GxP relevance	No
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

3.11.8.4 GID-3108800 STORAGE UNIT (WH-381.4)

The storage unit of the created logistic unit shall be configurable. If it is not configured, the system shall use the storage unit according to the station.

Attribute	Value
MES-Business: GxP relevance	No
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

3.11.8.5 GID-3108801 AUTO-COMPLETION (WH-381.5)

If Auto-completion is enabled, the widget shall complete without user interaction and create one logistic unit.

Attribute	Value
MES-Business: GxP relevance	No
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

3.11.8.6 GID-3108803 NUMBER OF CREATED LOGISTIC UNITS (WH-381.6)

The widget shall store the number of created logistic units for further usage.

Attribute	Value
MES-Business: GxP relevance	No
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

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3.11.9 Logistic Unit Payload Merge Widget

3.11.9.1 GID-3108804 MERGE SEVERAL LOGISTIC UNIT PAYLOADS (WH-97.1)

As an operator, I want to merge several logistic unit payloads into one payload, so that it has the desired size for its later usage or shipment.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

3.11.9.2 GID-3108806 MERGE Two LOGISTIC UNIT PAYLOADS (WH-97.2)

As an operator, I want to merge two logistic unit payloads into one payload, so it has the desired size for its later usage or shipment.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

3.11.9.3 GID-3108807 LOGISTIC UNIT MERGE RESTRICTIONS (WH-596.2)

The Merge operation is not allowed in case any parent logistic unit of the source or target payload down to the root logistic unit has an active transport order.

Attribute	Value
MES-Business: GxP relevance	No
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

3.11.9.4 GID-3108809 SUBLot MERGE RESTRICTIONS (WH0200.11.04)

It shall not be allowed to merge two sublots of the same batch, but with different subplot statuses.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

3.11.10 Logistic Unit Payload Move Widget

3.11.10.1 GID-3108812 MOVE A LOGISTIC UNIT PAYLOAD (WH-82.1)

As an operator, I want to **move a logistic unit payload** to a target logistic unit, so that this is correctly reflected in the stock records.

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Attribute	Value
MES-Business: GxP relevance	No
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

3.11.10.2 GID-3108813 DECONSOLIDATE A LOGISTIC UNIT (WH-82.2)

As an operator, I want to **deconsolidate a logistic unit** in order to store different contents also on different storage units, so that the content can be stored in the warehouse as desired, e.g. only one material per logistic unit.

Attribute	Value
MES-Business: GxP relevance	No
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

3.11.10.3 GID-3108815 LOGISTIC UNIT PAYLOAD MOVE WIDGET (WH-82.3)

The **Logistic Unit Payload Move widget** allows to move a logistic unit payload to a target logistic unit.

Attribute	Value
MES-Business: GxP relevance	No
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

3.11.10.4 GID-3108816 CREATION OF A TARGET LOGISTIC UNIT (WH-325)

The widget shall provide a configuration option to allow the **creation of a target logistic unit** in addition to the identification of an existing target logistic unit, if required.

Attribute	Value
MES-Business: GxP relevance	No
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

3.11.10.5 GID-3108819 PRINT A LABEL FOR A NEW TARGET LOGISTIC UNIT (WH-325.1)

The system shall **print a label** for the newly created target logistic unit.

Attribute	Value
MES-Business: GxP relevance	No
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

3.11.10.6 GID-3108820 OPTION TO SCAN OR CREATE TARGET LOGISTIC UNIT (WH-325.2)

The operator shall have the **options to scan an existing** target logistic unit or to **create a new** target logistic unit.

Attribute	Value
MES-Business: GxP relevance	No
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

3.11.10.7 GID-3108822 MOVE TO STORAGE UNIT (WH-425.2)

A payload can be moved to a storage unit **without providing a logistic unit**. An existing storage unit as target is required.

Attribute	Value
MES-Business: GxP relevance	No
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

3.11.10.8 GID-3108823 CHECK PAYLOAD MOVEMENT (WH-860.2)

In case the storage unit of the payload is changed, the widget shall execute the **Check Payload Movement (WH0300.02.06)** function ([GID-2789346](#)) successfully before moving the payload.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

3.11.11 Logistic Unit Payload Split Widget

3.11.11.1 GID-3108827 SPLIT A LOGISTIC UNIT (WH-85.1)

As an operator, I want to **split a logistic unit payload into several payloads**, so that these payloads have the desired size for their later usage or shipment.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

3.11.11.2 GID-3108828 LOGISTIC UNIT PAYLOAD SPLIT WIDGET (WH-85.2)

The **Logistic Unit Payload Split widget** allows to split a logistic unit payload into multiple payloads.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

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3.11.11.3 GID-3108829 STORAGE UNITS AS TARGET (WH-425.3)

The system shall support **storage units as target**. In this case, the execution of the split shall create the target payload on a logistic unit of the **Payload Only** category.

Attribute	Value
MES-Business: GxP relevance	No
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

3.11.11.4 GID-3108830 DEFAULT TARGET STORAGE UNIT (WH-425.4)

If a **payload on a logistic unit of the Payload Only** category is selected as **source**, the storage unit of the source shall be set as target by default.

Attribute	Value
MES-Business: GxP relevance	No
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

3.11.11.5 GID-3108831 LOGISTIC UNIT SPLIT RESTRICTION (WH-596.1)

The **Split** operation is not allowed in case any parent logistic unit of the source payload down to the root logistic unit has an **active transport order**.

Attribute	Value
MES-Business: GxP relevance	No
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

3.11.11.6 GID-3108832 CHECK TARGET STORAGE CONDITIONS (WH 860.3)

The widget shall execute the **Check Target Storage Conditions (WH0300.02.07)** function ([GID-2789340](#)) successfully against the new payloads.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

3.11.11.7 GID-3108833 INHERIT SUBLot STATUS (WH0200.12.04)

The subplot status of the new created subplot shall be inherited from the source subplot as described by the **Sublot Status at Creation (WH0300.05.01)** function ([GID-2789352](#)).

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

4 Common Warehouse Management Capabilities (WH0300+)

This chapter describes some basic Warehouse Management functions, regardless if they are used by the management client, by a widget or the RESTful API, or even by another fit-for-purpose application.

4.1 Transport Order Capabilities (WH0300.01+)

This chapter describes some basic functions to handle transport orders, regardless if they are used by the management client, by a widget, or the RESTful API.

4.1.1 *GID-2789333 Target Suggestion Based on Widget Configuration (WH0300.01.01)*

A part-based target suggestion can be overridden in some workflows by the widget configuration.

Step	#	Description
Determine widget configuration	10	Determine the lowest topology level (site, area, storage zone, or storage unit) for which a value is configured.
No widget configuration	20	In case no level is configured, finish the function with an empty result.
Storage unit is configured	30	In case a storage unit is configured, return the storage unit as result.
Other configuration than on storage unit level	40	Find all storage units that belong to the determined topology level and its configured value.
Check storage units	50	For all found storage units, execute the Check Target Storage Constraints (WH0300.02.01) function (GID-2789339) and the Optimal Storage Unit (WH0300.02.08) function (GID-2789341) until an available storage unit is found and return the storage unit as result. In case no storage unit was found, finish the function with an empty result and show an information message.

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Attribute	Value
MES-Business: GxP relevance	No
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

4.1.2 *GID-2789334 Target Suggestion Based on Part Configuration (WH0300.01.02)*

To find an available target storage unit for a logistic unit, part-specific attributes of the logistic unit's load and topology attributes must be considered.

Step	#	Description
Unique part check as load on LU	10	Determine the parts of the payloads loaded on the logistic unit in order to find a target (include recursively all payloads of child logistic units). In case more than one part is found, finish the function with an empty result.
Part-specific storage configuration is available	20	Check if assignments for the part-specific storage configuration are configured. In case no assignment is configured, finish the function with an empty result.
Unique assignment on storage unit level	30	Storage configuration assignment is on storage unit level and only one storage unit is assigned. Finish the function and suggest this storage unit.
Strategy by sequence	40	Determine the assignments in the configured sequence until a storage unit is found that passes the Check Target Storage Constraints (WH0300.02.01) function (GID-2789339) and the Check Target Storage Conditions (WH0300.02.07) function (GID-2789340) with success. The current storage unit of the logistic unit is always skipped. If the assignment level is not on storage unit level, always consider all storage units that belong to the assigned topology level (site, area, or storage zone) and determine the best fit according to the Optimal Storage Unit (WH0300.02.08) function (GID-2789341). If no storage unit is found, finish the function with an empty result and show an information message. If a storage unit is found, suggest this storage unit.

Step	#	Description
Strategy by quantity	50	<p>Determine for all assignments the inventoried quantity of the part. Sort the assignments by inventoried quantity in ascending order. Start to search for a storage unit with the assignment of the smallest inventoried quantity that passes the Check Target Storage Constraints (WH0300.02.01) function (GID-2789339) and the Check Target Storage Conditions (WH0300.02.07) function (GID-2789340) with success. The current storage unit of the logistic unit is always skipped.</p> <p>If the assignment level is not on storage unit level, consider all storage units that belong to the higher level of the assigned topology level (site, area, or storage zone) except for the current storage unit of the logistic unit and determine the best fit according to the Optimal Storage Unit (WH0300.02.08) function (GID-2789341). If no storage unit is found for the first assignment, continue with the next assignment according to the inventoried quantity sorting until a storage unit is found.</p> <p>If no storage unit is found, finish the function with an empty result and show an information message.</p> <p>If a storage unit is found, suggest this storage unit.</p>

Attribute	Value
MES-Business: GxP relevance	No
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

4.1.3 *GID-2789335 Transport Order Creation Check (WH0300.01.03)*

Beside the transport order data, further checks are needed related to the load of the logistic unit and the planned target.

Step	#	Description
Check TO availability for LU	10	In case a transport order in an active status exists (Created, Started) for the logistic unit, a further transport order is not allowed, the creation is aborted with an error message.
Check child LUs	20	In case a child LU of the LU for which the transport order has been created has a transport order in an active status (Created, Started), the creation is aborted with an error message, the LUs needs to be separated first.
Check parent LUs	30	In case the transport order has been created for a child logistic unit and a parent logistic unit down to the root logistic unit has a transport order in an active status (Created, Started), a further transport order is not allowed and the creation is aborted with an error message.

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Step	#	Description
Check planned target storage unit	40	In case a planned target storage unit has been defined during transport order creation and the Check Target Storage Constraints (WH0300.02.01) function WH0300.02.01 or the Check Target Storage Conditions (WH0300.02.07) function (GID-2789340) failed, the creation is aborted with an error message.
Check accessibility of source storage unit	50	In case the storage unit's Accessible is not true , the creation is aborted with an error message.
Check PO status	60	In case the initiator type of the transport order is PickingOrder , the picking order status may not be valid anymore with the creation of this transport. The Picking Order Status Check and Update (WH0300.04.01) function (GID-2789350) corrects it.

Attribute	Value
MES-Business: GxP relevance	No
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	Yes

4.1.4 **GID-2789337 Transport Order Start Check (WH0300.01.05)**

Under specific circumstances, transport order start may not be allowed and needs to be denied, e.g. if a high-rack location is blocked, the forklift should never try to take a pallet out of it.

Step	#	Description
Check accessibility of source storage unit	10	In case the storage unit's Accessible setting is not true, the start is aborted with an error message.

Attribute	Value
MES-Business: GxP relevance	No
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	Yes

4.1.5 *GID-3650939 Transport Order Start Actions*

This function combines all actions that must be performed when a transport order is started.

Step	#	Description
Update transport order status	10	The transport order status is set to Started . .
Update transport order	20	Set further transport order values: <ul style="list-style-type: none"> ▪ Start Time (to current time) ▪ Start User (logged-in user)
Cold Chain Tracking Action	30	For all sublots related to the transport with defined time in temperature range counters, proceed with the Cold Chain Data TO Start Action function (GID-3650937) .

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

4.1.6 *GID-2789336 Transport Order End Actions (WH0300.01.04)*

This function combines all actions that must be performed when a transport order is finished, canceled, or aborted.

Step	#	Description
Check storage constraints of TO's finish storage unit	10	If the transport order has been canceled, continue with next step. Depending on the transport order target status and planned target versus finish storage unit, the parameters for the check of the maximum number of logistic units of the finish storage unit must be adapted. Abort TO or finish TO: If the finish storage unit is equal to the planned target storage unit, decrease the expected number of LUs by 1. In case the Check Target Storage Constraints (WH0300.02.01) function (GID-2789339) or the Check Target Storage Conditions (WH0300.02.07) function (GID-2789340) fails for the finish storage unit, abort the function with an error message.
Update transport order status	20	Depending on the operation that is performed, the transport order status is set to Finished , Aborted , or Canceled .

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Step	#	Description
Update transport order	30	<p>Set further transport order values:</p> <ul style="list-style-type: none"> ▪ Finish Storage Unit ▪ Finish Storage Zone ▪ Finish Area ▪ Finish Site ▪ Finish Time (to current time) ▪ Finish User (logged-in user) <p>If the transport order has been canceled, the Finish Storage Unit, Zone, Area, and Site are set to the Start values of the transport order, since no transport happened in context of the transport order.</p>
Update expected number of LUs of the storage unit	40	Decrease the expected number of LUs of the planned target storage unit by 1.
Logistic unit must be moved	50	In case the logistic unit's storage unit is not the transport order's finish storage unit, the Perform a Logistic Unit Movement (WH0300.02.02) function (GID-2789342) moves the logistic unit and its load.
Check PO status	60	In case the initiator type of the transport order is PickingOrder, the picking order status may not be valid anymore when this transport ends. The Picking Order Status Check and Update (WH0300.04.01) function (GID-2789350) corrects it.
Cold Chain Tracking Action	70	For all sublots related to the transport with defined time in temperature range counters, proceed with the Cold Chain Data TO End Action function (GID-3650938) .

Attribute	Value
MES-Business: GxP relevance	No
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	Yes

4.2 Logistic Unit Movement Capabilities (WH0300.02+)

This chapter describes some basic functions for the movement of logistic units, regardless if this movement is triggered by a transport order, by a widget, or the RESTful API.

4.2.1 GID-2789339 Check Target Storage Constraints (WH0300.02.01)

This function describes the checks on storage constraints that are performed before a logistic unit is moved to a new storage unit or selected as a new target for a transport order.

Step	#	Description
Check accessibility of storage unit	10	In case the storage unit's Accessible option is not true , abort the function with an error message.
Check maximum numbers of LUs of the storage unit	20	In case the maximum number of LUs is not maintained or the target is a logistic unit, continue with next step. If Maximum Number of LUs <= (Current Number of LUs + Number of Expected LUs + 1) , abort the function with an error message.
	30	End the function with success.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	Yes

4.2.2 GID-2789340 Check Target Storage Conditions (WH0300.02.07)

This function describes the checks on defined storage conditions. This check is performed against a target storage unit before each movement or payload creation is booked. A violation of conditions is not allowed. All requirements defined for the part, batch, and subplot of a payload shall be fulfilled by the characteristics of the storage unit.

Step	#	Description
Collect batch status requirement	10	For all payloads to create or move, collect their batch status values.
Collect subplot status requirement	15	For all sublots to create or move, collect their subplot status values.

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Step	#	Description
Check batch status against storage unit	20	<p>Each batch status collected as requirement needs to be assigned to the target storage unit as storage attribute of the Batch Status type via its storage unit classes.</p> <p>In case not all collected batch status values are allowed by the storage unit, abort the function with an error message.</p>
Check subplot status against storage unit	25	<p>If the target storage unit has as a restriction assigned as storage attribute of the Sublot Status type via its storage unit classes, each subplot status collected needs to be assigned.</p> <p>If no storage attribute of the Sublot Status type is assigned to the target storage unit via its storage unit classes, all Sublot status values are allowed.</p> <p>If a subplot has no subplot status defined, it cannot be restricted by a storage attribute of the Sublot Status type.</p> <p>In case not all collected subplot status values are allowed by the storage unit, abort the function with an error message.</p>
Collect part requirements	30	For all payloads to create or move, collect all defined storage attributes defined for the parts of the payloads via their part classes. If a storage attribute is defined with different values, remember only the highest one.
Check part storage attributes against storage unit	40	<p>Each storage attribute collected as requirement needs to be assigned to the target storage unit via its storage unit classes with an equal or higher value.</p> <p>In case not all storage attribute requirements are fulfilled by the storage unit, abort the function with an error message.</p>
	50	End the function with success.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	Yes

4.2.3 GID-2789341 Optimal Storage Unit (WH0300.02.08)

This function describes how the system determines the optimal storage unit out of a set of storage units for a payload (or a logistic unit with all its payloads) according to the required storage conditions. This optimization is done for all target suggestions, when more than one storage unit is possible according to the storage constraints and storage configuration of the part. All requirements defined for the part and the batch of the payload shall be fulfilled by the characteristics of the storage unit.

Step	#	Description
Determine the payloads in scope	10	If a target should be found for a single payload, the part and batch of this payload are relevant. If a target should be found for a logistic unit with several payloads that reside directly or indirectly on the logistic unit and all payloads are of same part, this part and all batches of the payloads are relevant. If a target should be found for a logistic unit with several payloads that reside directly or indirectly on the logistic unit and these payloads are of different parts, end the function without providing a storage unit.
Collect required batch statuses	20	Collect all batch status values of all payloads in scope.
Collect required subplot statuses	25	Collect all subplot status values of all payloads in scope.
Exclude according to batch status	30	Exclude storage units that do not have all required storage attributes of the Batch Status type assigned to their storage unit classes.
Exclude according to subplot status	35	Exclude storage units with storage attributes of the Sublot Status type assigned to their storage unit classes that are unequal to the subplot status collected. Sublots with no subplot status set do not exclude storage units due to Sublot Status type assignments.
Collect part requirements	40	Collect all part requirements of all payloads in scope. These are all storage attributes assigned to the part classes of the part of the payload(s).
Exclude according to part requirement	50	Exclude storage units that do not have all storage attributes of the Part type assigned via their storage unit classes as characteristic with an equal or higher value.
No allowed storage unit	60	If no storage unit is in scope anymore, end the function without providing a storage unit.
Determine cost	70	Determine the cost for each storage unit still in scope: For all storage attributes required by the part, sum up the differences between the required storage attribute value and the storage attribute defined as characteristic of the storage unit.
	80	Return any one storage unit with the lowest cost (lowest calculated sum).

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Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

4.2.4 *GID-2789342 Perform a Logistic Unit Movement (WH0300.02.02)*

This function combines all actions that must be performed when the storage unit of a (parent) logistic unit is changed or the parent child relation of the logistic unit is changed with the movement. Checks on storage constraints have already passed, no error is expected.

Step	#	Description
Update target storage unit	10	In case the target of the logistic unit is a storage unit and not a parent logistic unit, increase current number of LUs by 1.
Update source storage unit	20	In case the source of the logistic unit was a storage unit and not a parent logistic unit, decrease current number of LUs by 1.
Update logistic unit	30	If different from the old storage unit, the storage unit of the logistic unit and of all its child logistic units is set to the new value.
MES Integration is enabled	40	In case the logistic unit or any of its child logistic units is loaded with a payload of the Sublot type, the subplot's storage location is updated with the storage unit (both must have the same identifier). If the MES storage location does not exist, it is created together with its area and warehouse. The area is created with the same name as the storage unit's area. The warehouse is created with the same name as the storage unit's site.

Attribute	Value
MES-Business: GxP relevance	No
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

4.2.5 *GID-2789343 Storage-related Checks and Updates During Logistic Unit Creation (WH0300.02.03)*

This function combines all actions that must be performed beside the creation of the logistic unit object. It checks storage constraints and performs further needed updates.

Step	#	Description
Perform checks	10	In case the Check Target Storage Constraints (WH0300.02.01) function (GID-2789339) fails, abort the function with an error message.

Step	#	Description
Update storage unit	20	Increase current number of LUs by 1.

Attribute	Value
MES-Business: GxP relevance	No
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

4.2.6 *GID-2789344 Storage-related Checks and Updates During Logistic Unit Deletion (WH0300.02.04)*

This function combines all checks and actions that must be performed beside the deletion of the logistic unit object.

Step	#	Description
Perform TO check	10	In case an active transport order (in the Created or Started statuses) is available for the logistic unit to be deleted, abort the function with an error message.
Perform load check	20	In case the logistic unit has any load (payload or logistic unit), abort the function with an error message.
Update storage unit		Decrease current number of LUs by 1.

Attribute	Value
MES-Business: GxP relevance	No
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

4.2.7 *GID-2789345 Check Logistic Unit Movement (WH0300.02.05)*

This function combines the checks that must be performed before the storage unit of a (parent) logistic unit is changed due to a movement.

Step	#	Description
Check target constraints	10	In case the Check Target Storage Constraints (WH0300.02.01) function link (GID-2789339) fails, abort the function with an error message.
Check target conditions	11	In case the Check Target Storage Conditions (WH0300.02.07) function link (GID-2789340) , abort the function with an error message.

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Step	#	Description
Check LU to move	20	In case the logistic unit has an active (Created, Started) transport order and the widget (Logistic Unit Move widget only) is not configured to allow movements of logistic units with a transport order, abort the function with an error message.
Check LU's parent LUs	30	In case any parent logistic unit down to the root logistic unit has an active (Created, Started) transport order, abort the function with an error message.
Check LU's child LUs (not checked by Restful API)	40	In case any child logistic unit of the logistic unit has an active (Created, Started) transport order and the widget (Logistic Unit Move widget only) is not configured to allow movements of logistic units with a transport order, abort the function with an error message.
Check PO status	50	In case the logistic unit is assigned to a picking order (open transport), the picking order status may not be valid anymore when the movement is performed. The Picking Order Status Check and Update (WH0300.04.01) function (GID-2789350) corrects it.
	60	End the function with success.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

4.2.8 *GID-2789346 Check Payload Movement (WH0300.02.06)*

This function combines the checks that must be performed before a payload is moved without a logistic unit.

Step	#	Description
Check target constraints	10	In case the Check Target Storage Constraints (WH0300.02.01) function (GID-2789339) fails, abort the function with an error message.
Check target conditions	11	In case the Check Target Storage Conditions (WH0300.02.07) function (GID-2789340) fails, abort the function with an error message.
Check payload's current parent LUs	20	In case any parent logistic unit down to the root logistic unit has an active (Created, Started) transport order, abort the function with an error message.

Step	#	Description
Check TO of the payload to move (not checked by the Restful API)	30	In case the payload has an active (Created, Started) transport order and <ul style="list-style-type: none"> ▪ the widget (Logistic Unit Move widget only) is not configured to allow movements of payloads with an active transport order or ▪ the widget (Logistic Unit Move widget only) is configured to allow movements of payloads with an active transport order, but only if the target is another logistic unit and not a storage unit, abort the function with an error message.
Check if last subplot on temporary LU (only checked by Restful API)	31	In case the temporary logistic unit of the payload has an active (Created, Started) transport order and the payload is the last payload on the logistic unit, abort the function with an error message.
	40	End the function with success.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

4.3 Batch Management Capabilities (WH0300.03+)

This chapter describes some basic functions for batch management, regardless if this batch operation is triggered by a goods receipt, batch management, or the RESTful API.

4.3.1 *GID-2789348 Batch Status at Creation (WH0300.03.01)*

This function describes the determination of the initial batch status.

Step	#	Description
Determine FSM default status	10	Retrieve and set the default status configured with the BatchQuality FSM.
Check for part-specific batch status	20	In case the part has a default batch status configured and it differs from the status set at previous step, execute an FSM transition to the part-configured default batch status.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	Yes

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4.4 Picking Order Capabilities (WH0300.04+)

This chapter describes some general functions used to handle picking orders.

4.4.1 *GID-2789350 Picking Order Status Check and Update (WH0300.04.01)*

This function describes if the current picking order status needs to be adapted.

Step	#	Description
	10	If the picking order status is not Picked or Transport Orders Created , end the function.
PO finished?	20	If the picking order status is Transport Orders Created and no logistic unit assigned to the picking order has an active transport order (open transports), set the picking order to Finished . End the function.
All transport orders created?	30	If the picking order status is Picked , check if all assigned logistic units have a transport order or have already been moved to the target. If for all of the assigned logistic units at least one of the following conditions is valid, update the picking order to Transport Orders Created : <ul style="list-style-type: none"> ▪ a transport order exists with a TO Initiator = PO Identifier and TO Initiator type = PickingOrder ▪ the LU has already been deleted ▪ the LU is already at the picking order target
All transport orders executed?	40	If the picking order status is Transport Orders Created , check if no active transport orders with a TO Initiator = PO Identifier and TO Initiator type = PickingOrder exist anymore. If none exist, update the picking order to Finished .

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	Yes

4.5 Payload Management Capabilities (WH0300.05+)

This chapter describes some basic functions for payload management, regardless if this payload operation is triggered by a goods receipt, split operation, or the RESTful API.

4.5.1 *GID-2789352 Sublot Status at Creation (WH0300.05.01)*

This function describes the determination of the initial subplot status. The function is used e.g. for goods receipt, for split operations, or for split for picking.

Step	#	Description
Inherit status	10	In case the subplot is split from an existing subplot, inherit the subplot status from the source subplot. Exit the function.
Determine default status	20	Retrieve and set the default status configured with the part of the subplot.
	30	In case the part has no default subplot status configured, the subplot status is not set.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

4.6 Cold Chain Capabilities

This chapter describes some general basic functions to support the cold chain functionality for payloads of the Sublot type, regardless of whether an operation is triggered by a WH client or the RESTful API.

4.6.1 *GID-3393921 Cold Chain Data Initialization at Sublot Creation*

This function describes which data is created and initialized to allow cold chain tracking during lifetime of the subplot.

Cold chain data definition changes for a part are not passed on to existing sublots.

Step	#	Description
	10	In case the part of the subplot has no temperature ranges assigned, exit the function.
Initialize cold chain history for a subplot	20	For all temperature ranges assigned to the part of the subplot, create a cold chain history data set (counter) and set following data: <ul style="list-style-type: none"> ▪ Temperature Range ▪ Action (Entered) = Goods Receipt ▪ Timestamp (Left) = EMPTY (not set) ▪ Cumulated Time = 0 min ▪ User Name = login name of current user

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Step	#	Description
Start a counter	30	<p>If a temperature range assigned to the part of the subplot is equal with or overlaps the temperature range of the subplot's storage unit, set additional following data:</p> <ul style="list-style-type: none"> ▪ Storage Unit (Entered) = subplot's storage unit ▪ Timestamp (Entered) = current time ▪ Cumulated Time = EMPTY (not set)

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

4.6.2 *GID-3393957 Cold Chain Data Update after Sublot Movement*

This function describes which data is updated when a subplot is moved to a storage unit with a different temperature range.

Step	#	Description
Check if cold chain history needs to be updated	10	If no cold chain history data (temperature range counter) for the subplot exists, exit the function.
No history data change (of an active counter)	20	For all active temperature range counters of a subplot: If the temperature range of a counter is equal with or overlaps the temperature range of the target storage unit, no cold chain history data needs to be updated. The counter remains active.
Finalize history data set (stop counter)	30	For all active temperature range counters of a subplot: <ul style="list-style-type: none"> ▪ the Timestamp (Left) to the current time ▪ calculate and set the Cumulated Time (Cumulated Time from last history data set + (Timestamp (Left) - Timestamp (Entered)))

Step	#	Description
Create new history data set (start counter)	40	<p>For all stopped temperature range counters of a subplot:</p> <ul style="list-style-type: none"> ▪ Temperature Range ▪ Action (Entered) = Relocation ▪ Storage Unit (Entered) = target storage unit ▪ Timestamp (Entered) to the current time ▪ Timestamp (Left) = EMPTY (not set) ▪ User Name = login name of current user

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

4.6.3 *GID-3565781 Cold Chain Data Inheritance at Sublot Split*

This function describes CCT data creation for a target subplot of a split operation.

Step	#	Description
	10	In case the part of the subplot has no temperature ranges assigned, exit the function.
Inherit CCT data from source subplot	20	<p>For all temperature range counters available on the source subplot, create a cold chain history data set for the target subplot for this temperature counter if the temperature range for the part is still defined and set the following data to document the inherited values:</p> <ul style="list-style-type: none"> ▪ Temperature Range ▪ Action (Entered) = Split ▪ Storage Unit (Entered) = EMPTY (not set) ▪ Timestamp (Entered) = EMPTY (not set) ▪ Timestamp (Left) = EMPTY (not set) ▪ Cumulated Time = cumulated time of source subplot (of TR with same minimum and maximum temperature) ▪ User Name = login name of current user <p>If for the part, the CCT data definitions were changed since the time of source subplot creation, only the new CCT part data definitions are used:</p> <ul style="list-style-type: none"> ▪ If a temperature range for the part is not defined anymore, the creation of target subplot's CCT history data for this temperature range was skipped.

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Step	#	Description
		<ul style="list-style-type: none"> If a temperature range for the part is newly defined, a new CCT history data set is created like an inherited one. Only the Cumulated Time is set to 0 min.
Start all counters according to the target storage unit	30	<p>If a temperature range assigned to the part of the subplot is equal with or overlaps the temperature range of the target subplot's storage unit, create an additional data set for it as in step 20 but with following differences:</p> <ul style="list-style-type: none"> Storage Unit (Entered) = target subplot's storage unit Timestamp (Entered) = current time Cumulated Time = EMPTY (not set)

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

4.6.4 GID-3609224 Cold Chain Data Inheritance at Sublot Merge

This function describes CCT data updates for a target subplot after a merge operation. The system must ensure that the target subplot always receives the worst-case value.

Step	#	Description
	10	In case all involved sublots have no TITR counters (no CCT history entry exists for them), exit the function.
Check TITR consistency	20	Unless all involved sublots have the same TITR counters available (only minimum and maximum temperatures are relevant), the merge operation is aborted with an error message.
Inherit worst-case TITR data to the target subplot	30	<p>For all TITR counters of the target subplot, check if any source subplot has a higher TITR value with the same minimum and maximum temperatures. If yes, the higher TITR value needs to be passed on to the target subplot. If the TITR counter of the target subplot is running, stop it. Create a new cold chain history data set for this temperature range and target subplot and set the following data to document the inherited value:</p> <ul style="list-style-type: none"> Temperature Range Action (Entered) = Merge Storage Unit (Entered) = EMPTY (not set) Timestamp (Entered) = EMPTY (not set) Timestamp (Left) = EMPTY (not set)

Step	#	Description
		<ul style="list-style-type: none"> ▪ Cumulated Time = cumulated time of the source subplot (of TR with same minimum and maximum temperatures and worst-case value) ▪ User Name = login name of current user
Start the stopped TITR counters again	40	<p>If a TITR counter of the target subplot was stopped, create an additional data set as in step 30 to start the TITR counter again but with the following differences:</p> <ul style="list-style-type: none"> ▪ Storage Unit (Entered) = target subplot's storage unit ▪ Timestamp (Entered) = current time ▪ Cumulated Time = EMPTY (not set)

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

4.6.5 GID-3623443 Correct TITR actions

This function describes correction of TITR values of subplot.

Step	#	Description
Book time difference	10	<p>Field to book time difference is available for all TITR counters of the selected subplot.</p> <p>Time difference is entered as below:</p> <p>New TITR value= Current TITR value + Time Difference.</p> <p>If the counter is not running, booking of the corrections is added to the history.</p> <p>If the counter is running, the current history entry is closed first and then the booking is updated. The counter shall start again as new history entry.</p>
Save time difference	20.1	If the calculated TITR value becomes negative, Cumulated Time is updated to 0.
	20.2	If time difference for a temperature range is left empty, Cumulated Time for this temperature range remains unchanged.
	20.3	If time difference for all available temperature ranges is left empty, error message is displayed forcing the user to update at least one temperature range.
	20.4	Signature with access privilege WH_EditTITRCorrectionRecord is requested.

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Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

4.6.6 GID-3650937 Cold Chain Data TO Start Action

Since the temperature range of the transport route may not be the same as the temperature range of the starting storage unit, the transport shall be executed in a globally defined temperature range for transports.

Step	#	Description
	10	In case the sublots to transport have no time in temperature range counters, exit the function.
Load global TR for TOs	20	Load the minimum temperature and the maximum temperature from application configuration keys: <ul style="list-style-type: none"> ▪ TransportOrderTemperatureRangeMin ▪ TransportOrderTemperatureRangeMax
Stop all counters	30	For all active temperature range counters of all sublots to transport set the following data: <ul style="list-style-type: none"> ▪ the Timestamp (Left) to the current time ▪ calculate and set the Cumulated Time (Cumulated Time from last history data set + (Timestamp (Left) - Timestamp (Entered)))
Start counters according TO TR	40	For all active temperature range counters of all sublots to transport, if a temperature range of a counter is equal to or overlaps the temperature range of the transport order, then create a new cold chain history data set with the following data: <ul style="list-style-type: none"> ▪ Temperature Range ▪ Action (Entered) = Start Transport Order ▪ Storage Unit (Entered) = EMPTY (not set) ▪ Timestamp (Entered) = current time ▪ Timestamp (Left) = EMPTY (not set) ▪ User Name = login name of current user

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Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

4.6.7 *GID-3650938 Cold Chain Data TO End Action*

Since the temperature range of the transport route may not be the same as the temperature range of the starting or ending storage unit, the transport is executed in a globally defined temperature range for transports. After finishing the transport order, the temperature range of the target storage unit shall be taken into account instead of the globally defined temperature range for transports.

Step	#	Description
	10	In case the sublots to transport have no time in temperature range counters, exit the function.
Stop counters	20	For all active temperature range counters of all sublots to transport, if the status of the transport order is Started or this temperature range counter is not equal to and not overlaps the temperature range of the target storage unit, set the following data: <ul style="list-style-type: none"> ▪ the Timestamp (Left) to the current time ▪ calculate and set the Cumulated Time (Cumulated Time from last history data set + (Timestamp (Left) - Timestamp (Entered)))
Start not running counters according to target storage unit	30	For all not active temperature range counters of all sublots to transport, if a temperature range of a counter is equal to or overlaps the temperature range of the target storage unit, then create a new cold chain history data set with the following data: <ul style="list-style-type: none"> ▪ Temperature Range ▪ Action (Entered) = Finish Transport Order ▪ Storage Unit (Entered) = Target Storage Unit ▪ Timestamp (Entered) = current time ▪ Timestamp (Left) = EMPTY (not set) ▪ User Name = login name of current user

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

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4.7 Further General Requirements

The following capabilities are specified in detail in the related Integrated Design Specification.

4.7.1 *Batch Uniqueness*

4.7.1.1 GID-3108841 BATCH IDENTIFIER (WH-380.1)

The system shall support a non-unique batch configuration. In this case, the system shall use the composition of batch identifier + compound separator+ part name as internal batch identifier to allow unique access.

The part revision is not included within the internal batch identifier, hence batches with the same part name need to have unique batch identifiers independent of their part revision.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

4.7.1.2 GID-3108842 BATCH CREATION (WH-380.2)

During batch creation, it shall be sufficient that the user only provides the batch Identifier regardless of whether the batch identifier is unique or not.

In case of the non-unique batch configuration, the internal batch identifier shall be built automatically.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

4.7.1.3 GID-3108843 UI FOR NON-UNIQUE BATCHES (WH-380.3)

In the UI, even if the batch is non-unique, the batch identifier is always displayed without compound separator and part name.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

4.7.1.4 GID-3108844 FILTER ON BATCH IDENTIFIER (WH-380.5)

All filters shall support that only the possibly non-unique batch identifier is provided.

In case of a non-unique batch, the result set shall contain all available batches that have the same identifier but different parts.

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Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

4.7.1.5 GID-3108845 NON-UNIQUE BATCH SUBLot BARCODES (WH-380.6)

For subplot barcodes, in case of the non-unique batch configuration, the part name is appended without compound separator.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

4.7.2 Logistic Unit Category

4.7.2.1 GID-3108846 CATEGORY OF A LOGISTIC UNIT (WH-377.1)

The system shall provide an option list to define the category of a logistic unit: Standard, Load Control, Transport Only, Payload Only.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

4.7.2.2 GID-3108847 DEFAULT STANDARD CATEGORY (WH-377.2)

The default category for all logistic units is Standard. Temporary logistics unit are always of the Standard category.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

4.7.2.3 GID-3108848 TRANSPORT ONLY CATEGORY (WH-377.3)

The system shall not allow to adapt payloads of this category. Load and unload operations are prohibited. This is only allowed from an MES using the RESTful API.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

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4.7.2.4 GID-3108849 LOAD CONTROL CATEGORY (WH-408)

Before a first load or a total unload operation is executed on a logistic unit, the system shall send a message to the MES and abort the operation if it does not receive a success reply. In case of an error reply, the system shall display the error message provided by the MES.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

4.7.2.5 GID-3108850 PAYLOAD ONLY CATEGORY (WH-425.1)

The explicit creation of a logistic unit of the Payload Only category is not possible.

Logistic units of the Payload Only category are not visible to the user. They cannot be identified as logistic units.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

4.7.3 Logistic Unit Non-SSCC Identifiers and Barcodes

4.7.3.1 GID-3108853 NON-SSCC IDENTIFIER AND BARCODES (WH-403.1)

The system shall support non-SSCC identifier and barcodes for logistic units.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

4.7.3.2 GID-3108854 LOGISTIC UNIT BARCODE PATTERN CONFIGURATION (WH-403.2)

The system shall allow to configure a logistic unit barcode pattern for a non-SSCC or SSCC barcode to be used by the system when a temporary logistic unit is created.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

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4.7.3.3 GID-3108856 MANDATORY BARCODE (WH-403.3)

A barcode shall be a mandatory attribute for all logistic units. For a permanent logistic unit, the barcode can be changed.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

4.7.3.4 GID-3108857 LENGTH OF SERIAL NUMBER (WH-403.4)

The length of the serial number of the SSCC or non-SSCC identifier and barcode can be configured.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

4.7.3.5 GID-3108858 IDENTIFY LOGISTIC UNIT BY BARCODE (WH-403.5)

To identify a logistic unit by barcode, the barcode has to match exactly the barcode stored with the logistic unit.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

4.7.3.6 GID-3108860 LABEL WITH LOGISTIC UNIT IDENTIFIER (WH-403.7)

A logistic unit label shall display the logistic unit identifier and the logistic unit barcode.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

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4.7.4 Support Several Sublot Barcode Formats

4.7.4.1 GID-3108863 CONFIGURE BARCODES (WH-438.1)

The system shall support the configuration of at least five different barcode patterns for identifying sublots. This includes barcodes according GS1 definition, but only with a defined configurable pattern.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

4.7.4.2 GID-3108865 UNIQUE SUBLot IDENTIFIED BY CONTENT OF BARCODE (WH-438.2)

If the content of the barcode does not provide enough information to identify a unique subplot, the system shall reject the scan with an error message instead of returning the subplot data.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

4.7.5 Transaction History and External System Integration (WH-108+)

4.7.5.1 GID-3108868 UPLOAD TRANSACTION DATA (WH-108.1)

It shall be configurable if the system sends all transaction history data to a message broker.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

4.7.5.2 GID-3108870 TRANSACTION ID (WH-108.2)

All data belonging to one transaction ID shall be sent together.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

4.7.6 MES Integration

4.7.6.1 GID-3108873 COMMUNICATION CONFIGURATION (WH-392)

If Warehouse Management is configured to communicate with an external MES,

- each move of a payload of the Sublot type with a change of storage unit updates the storage location of the subplot accordingly (if the storage location does not exist, it is created),
- a quantity update of a payload of the Sublot type updates the quantity of the subplot accordingly,
- a total consumption of a payload of the Sublot type sets the logically deleted flag of the subplot.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

4.7.6.2 GID-3108874 MES OWNERSHIP OF WORK CENTERS AND STATIONS (WH-479)

If Warehouse Management is configured to communicate with an external MES, the MES has the ownership of stations and work centers. Warehouse Management provides stations and work centers only in a read-only view.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

4.7.7 Label Printing

4.7.7.1 GID-3108914 DISPLAY GHS SYMBOLS (WH-415.1)

A subplot label shall display GHS symbols and signal words in case the data is maintained for the subplot's material (part) in PharmaSuite

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

4.7.7.2 GID-3108915 GS1 2D BARCODE (WH-415.2)

Sublot labels shall support the GS1 2D barcode type.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

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5 Non-functional Requirements (WH0400+)

This document chapter details the non-functional requirements of Warehouse Management.

5.1 System Update and Data Migration from the Previous Software Version (WH0400.01+)

5.1.1 *GID-2789363 System Update from the Previous Software Version (WH0400.01.01)*

The system shall allow to update a Warehouse Management System from the previous software version to the subsequent software version by applying functional and structural changes and adding new functions.

In addition to the existing functionality, a system update installs all new functionality provided by the new Warehouse Management Version.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

5.1.2 *GID-2789364 Data Migration from the Previous Software Version (WH0400.01.02)*

The data migration package shall allow to migrate specific data that already resided in a previous software version of Warehouse Management to be suitable for use with the new or changed system functions of the subsequent software version.

For a data migration from Warehouse Management 4.02.03 to FT PharmaSuite 11.01.00, the following data migration task is available:

- In case the standard subplot barcode scanning pattern has not been customized, the pattern shall be updated to allow hyphens for batch and part names.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

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5.2 Performance Requirements (WH0400.02+)

5.2.1 *GID-2789366 Performance of Stock Records Editor (WH0400.02.01)*

Initial search < 3 sec (display after selecting the filter)

Smooth scrolling through the table, with the following scenario:

- up to 10,000 SUs
- up to 10,000 LUs
- 100,000 LU payloads

Attribute	Value
MES-Business: GxP relevance	No
MES-Business: Business Impact	Medium
MES-Compliance: 21 CFR Part 11 relevance	No

5.2.2 *GID-2789367 Performance of Storage Unit Target Suggestion (WH0400.02.02)*

The target suggestion at transport order creation for a part with a configured preferred area with 5000 empty and 5000 filled storage units should find a matching storage unit in < 10 sec. The part should have at least 3 storage attributes and not all storage units should be an allowed target.

Attribute	Value
MES-Business: GxP relevance	No
MES-Business: Business Impact	Medium
MES-Compliance: 21 CFR Part 11 relevance	No

5.3 Compliance Requirements (WH0400.03+)

The Warehouse Management compliance requirements are structured in the following sections:

- **Audit Log (WH0400.03.01)** requirements ([GID-2789369](#))
- **Electronic Signatures (WH0400.03.02)** requirements ([GID-2789370](#))

5.3.1 *GID-2789369 Audit Log (WH0400.03.01)*

The system shall provide functionality for audit log.

The following data shall be included as part of any human-readable form of an audit log record:

- Transaction type (create, update, delete)
- Timestamp
- Logged-in user (login name)
- Transaction type-specific data

The audit log cannot be altered.

The following warehouse-specific data provides the audit log functionality:

- Storage attributes

Assignment changes to a Storage Unit Class or Part Class are always logged as change for both objects.

TIP

Further Audit Log data is provided by the WXF part of FTPC or PharmaSuite for:

- Users
- User groups
- Access privileges
- Parts
- Part classes
- Storage units
- Storage zones
- Storage unit classes
- Temperature ranges for parts
- Areas
- Sites
- Configuration

and assignments between this data.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	Yes

5.3.2 Electronic Signatures (WH0400.03.02+)

The system shall support electronic signatures.

For the definition of the signature and dialogs requesting a single or double signature, please refer to the *FTPC Modular Framework WebSDK User's Guide* [A1] ([GID-3253732](#)).

Several Warehouse Management Client functions requires a single signature as confirmation. The following requirements describe which signature data is collected and where it is stored:

- Adjust Payload Quantity Signature (WH0100.03.02.02.01) ([GID-2789130](#))
- Change Sublot Status Signature (WH0100.03.02.06.01) ([GID-2789136](#))
- Batch Transfer Signature (WH0100.09.02.01.01) ([GID-2789188](#))
- Batch Creation Signature (WH0100.09.02.02.01) ([GID-2789190](#))
- Batch Change Signature (WH0100.09.02.03.01) ([GID-2789192](#))
- Correct Data Signature (WH0100.03.02.05.05) ([GID-2789134](#))

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5.3.3 Tracking of Sublot Labels (WH0400.03.03+)

The system shall support the PharmaSuite subplot label history and reprint functionality.

The prerequisite for this is the use of Jasper report designs for the subplot labels.

5.3.3.1 GID-2789372 SUPPORT OF PHARMA SUITE SUBLOT LABEL HISTORY (WH0400.03.03.01)

A Jasper-based subplot label printed from Warehouse Management shall be visible in the PharmaSuite subplot label history and it shall be possible to reprint the label with the PharmaSuite functionality.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	Yes

6 RESTful API (WH0500+)

The following RESTful APIs are specified in more detail in the related Integrated Design Specification.

6.1 Sublot Services (WH0500.01+)

The Warehouse Management RESTful API shall support calls to view and update subplot data.

6.1.1 GID-2789375 Sublot Status Update (WH0500.01.01)

The system shall provide functionality to update the status of a subplot. The storage conditions are not checked and can be violated.

It shall be possible to set a value of the **SublotStatus** choice list or keep the property empty to remove an existing value.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

6.1.2 GID-2789376 Sublot Status at Creation (WH0500.01.02)

The system shall provide functionality to set the status of a subplot when the subplot is created. The storage conditions are not checked at this point. This is only possible during assigning of the payload and the logistic unit with its storage unit.

It shall be possible to set any value of the **SublotStatus** choice list. If no subplot status is provided by the caller and the part of the subplot has a default subplot status defined, the default value defined with the part is set.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

6.1.3 GID-2789377 Sublot Read (WH0500.01.03)

The system shall provide the status of the subplot(s) retrieved.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

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6.1.4 GID-2789378 Sublot Status Change Documentation (WH0500.01.04)

The system shall provide the functionality to document a subplot status change executed by an external system. The caller must provide the data to identify the subplot and the old and new subplot statuses. Optional information about the transaction process that caused the status change, the station, the external user who executed the change, and an additional comment can be defined.

The system creates a transaction history record for the subplot with **Sublot Payload** as **Transaction Object Type**, **Status Changed** as **Transaction Type**, and the other provided information.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

6.1.5 GID-3576326 Set Sublot TITR Data

The system shall provide the functionality to set the time in temperature range of one or multiple sublots to a specific value.

If a monitored temperature range of a subplot is not referenced, its value is not changed.

The Sublot Cold Chain History contains the defined time in temperature range values of the sublots. The referenced action is **Time Set**.

A subplot update fails:

- If the specified subplot does not exist.
- If a temperature range is defined that is not monitored for the subplot.
- If a temperature range is defined without a value.
- If a temperature range is defined with a value < 0.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

6.1.6 GID-3576350 Add Sublot TITR Data

The system shall provide the functionality to increase or decrease the time in temperature range of one or multiple sublots by a specific value.

If the new calculated time in temperature range value is negative, it is set to 0.

If a monitored temperature range of a subplot is not referenced, its value is not changed.

The Sublot Cold Chain History contains the new calculated time in temperature range values of the sublots. The referenced action is **Time Added**.

A subplot update fails:

- If the specified subplot does not exist.
- If a temperature range is defined that is not monitored for the subplot.
- If a temperature range is defined without a value.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

6.1.7 *GID-3650903 Read Sublot TITR Data*

The system shall provide the functionality to read the time in temperature range values of one or multiple sublots. This shall include logically deleted sublots.

To read the data, the requester has to provide the subplot name(s) of interest.

The request returns the following data per subplot:

- Sublot name
- Batch name
- Logically deleted flag
- List of temperature ranges with:
 - Minimum temperature
 - Maximum temperature
 - Cumulated value in seconds (at execution time of the request)

The request fails:

- If a specified subplot does not exist.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

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6.2 Part Services (WH0500.02+)

The Warehouse Management RESTful API shall support calls to view and update part data.

6.2.1 *GID-2789380 Part Class Assignment Read (WH0500.02.01)*

The system shall provide functionality to retrieve all part classes assigned to a part.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

6.2.2 *GID-2789381 Part Class Assignment Update (WH0500.02.02)*

The system shall provide functionality to assign a part class to a part.

The system shall provide functionality to unassign a part class from a part.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

6.2.3 *GID-2789382 Part Read (WH0500.02.03)*

The system shall provide functionality to retrieve data of all parts or one specific part.

The data returned is limited to part name, revision, and description.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

6.3 Payload Services (WH0500.03+)

The Warehouse Management RESTful API shall support calls to view, update, and delete payload data.

6.3.1 *GID-2789384 Payload for Sublot Creation (WH0500.03.01)*

The system shall provide functionality to create a payload for a subplot on a logistic unit. The storage conditions are checked against the storage unit of the logistic unit. If the check fails, the creation of the payload is denied.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

6.3.2 GID-3576325 Create Payloads for Sublots and Set TITR Data

The system shall provide the functionality to extend data for multiple newly created sublots:

- Creates the corresponding payload object for the subplot.
- Allows to set the storage unit of the payload directly or indirectly through the work center or station.
- Allows to set a subplot's time in temperature range value.
- Allows to define a subplot status that will be documented in the transaction history.

If a monitored temperature range of a subplot is not referenced, its value is initialized with 0.

The Sublot Cold Chain History contains the new time in temperature range values of the sublots. The referenced action is **Goods Receipt**.

A subplot update fails:

- If the specified subplot does not exist.
- If a temperature range is defined that is not monitored for the subplot.
- If a temperature range is defined without a value.
- If a temperature range is defined with a value < 0.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

6.4 Further Services

6.4.1 GID-3272249 Create Logistic Units and Sublots (WH-7.1)

As a system integrator, I want to implement the goods receipt of a logistic unit and subplot(s) by using a RESTful API, so that logistic unit and the subplot(s) are added to stock records

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

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6.4.2 GID-3272250 Move a Logistic Unit (WH-7.2)

As a system integrator, I want to implement moving a logistic unit by using a RESTful API, so that the logistic unit is displayed in the target storage unit in the stock records view.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

6.4.3 GID-3272251 Move a Sublot (WH-7.3)

As a system integrator, I want to implement relocating a subplot by using a RESTful API, so that subplot is displayed in the target logistic unit in the stock records view.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

6.4.4 GID-3272252 Remove Stock (WH-7.4)

As a system integrator, I want to implement the goods issue of a logistic unit by using a RESTful API, so that logistic unit and its content are removed from the stock records.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

6.4.5 GID-3272253 Produce Sublots (WH-7.5)

As a system integrator, I want to implement the material production from an MES by using a RESTful API, so that produced sublots are displayed in the stock records.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

6.4.6 GID-3272254 Consume Sublots (WH-7.6)

As a system integrator, I want to implement the material consumption from an MES by using a RESTful API, so that consumed sublots are removed from the stock records.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

6.4.7 GID-3272255 Access Privilege Checks (WH-7.7)

Authorization: Specific access privileges to be required per business object and type of action (view, edit, delete).

Remark: Authorization also implies authentication.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

6.4.8 GID-3272256 Goods Receipt (WH-101.2)

RESTful API can manage goods receipts.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

6.4.9 GID-3272257 Non-unique batch access and data (WH-380.4)

In case of a non-unique batch system configuration, a user shall provide the complete batch identifier (including compound separator and part name) to retrieve the sublots of a batch. In the result, compound separator and part name are removed from the batch identifier.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

6.4.10 GID-3272258 MES Integration (WH-393)

The system shall provide RESTful API calls for the MES integration with EIHub and following channels:

- ChangeSublotQuantityAdjusted
- ChangeSublotsCreated
- ChangeSublotsDeleted

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- GetDoesLogisticUnitExist
- GetSublotsOfLogisticUnit
- ProcessAddSublotToContainer
- ProcessCreateLogisticUnit
- ProcessMoveLogisticUnit
- ProcessMoveSublotsToLogisticUnit
- ProcessPrintLogisticUnitLabel
- ProcessReprintLogisticUnitLabel

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

6.4.11 GID-3272259 External User (WH-393.1)

With a RESTful API action, the caller that causes one or more transaction history entries shall be able to transfer and store the External User Name attribute with his entries.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

6.4.12 GID-3272260 Logistic Unit (WH-403.6)

The RESTful API shall support to read a logistic unit by its identifier or barcode.

The creation of a permanent logistic unit with a RESTful API requires the barcode as a mandatory attribute.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

6.4.13 GID-3272261 Transport Orders (WH-596.8)

The RESTful API can manage transport orders.

- RESTful API (WH0500+)
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Attribute	Value
MES-Business: GxP relevance	No
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

6.4.14 GID-3272262 Suppliers (WH-859)

The RESTful API can manage suppliers.

Attribute	Value
MES-Business: GxP relevance	No
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

6.4.15 GID-3272263 Picking Orders (WH-877)

The RESTful API can manage picking orders.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

6.4.16 GID-3272264 Picking Orders for PharmaSuite (WH-898)

The RESTful API can create a picking order for a PharmaSuite order or order step.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

6.4.17 GID-3272265 Sublot Movements to Storage Units (WH-1028)

The RESTful API shall allow to move a subplot from a logistic unit to a storage unit or move a subplot from a storage unit to another storage unit.

Attribute	Value
MES-Business: GxP relevance	Yes
MES-Business: Business Impact	High
MES-Compliance: 21 CFR Part 11 relevance	No

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7 Reference Documents

The following documents are available from the Rockwell Automation Download Site.

No.	Document Title	Part Number
A1	FTPC User Guide Web Experience Framework	PCWE-UM001B-EN-E

TIP

To access the Rockwell Automation Download Site, you need to acquire a user account from Rockwell Automation Sales or Support.

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8 Document Information

The document information covers various data related to the document.

8.1 Approval

This document has been approved electronically via the Rockwell Automation Document Management System (DMS). The required approvers of this document include the following:

Name	Role
Norbert Ern	Product Owner
Jürgen Stieber	Technical Lead
Annette Blob	Test Lead

8.2 Version Information

Object	Version
FT PharmaSuite	11.01.00
Functional Requirement Specification	1.0

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9 Appendix A - Revision History

9.1 Updated Requirements

[GID-2789125](#) Stock Records Editor (WH0100.03+)

[GID-2789127](#) Stock Records Operations (WH0100.03.02+)

[GID-2789140](#) Part Assignment Attributes (WH0100.04.01.01)

[GID-2789149](#) Storage Unit Assignment Attributes (WH0100.05.01.01)

[GID-3272246](#) Storage Unit Class Editor (WH0100.07+)

[GID-2789167](#) Storage Unit Class Attributes (WH0100.07.01)

[GID-2789171](#) Add a Storage Unit Class (WH0100.07.02.01)

[GID-2789172](#) Edit a Storage Unit Class (WH0100.07.02.02)

[GID-2789174](#) Assign Storage Units to a Storage Unit Class (WH0100.07.02.04)

[GID-2789185](#) Batch Attributes (WH0100.09.01)

[GID-2789193](#) Batch History (WH0100.09.02.04)

[GID-2789204](#) Add a Goods Receipt Position (WH0100.10.02.06)

[GID-2789205](#) Edit a Goods Receipt Position (WH0100.10.02.07)

[GID-2789216](#) Picking Order Attributes (WH0100.12.01)

[GID-2789235](#) Add a Picking Order for a PharmaSuite Order (WH0100.13.02.01)

[GID-2789236](#) Add a Picking Order for a PharmaSuite Order Step (WH0100.13.02.02)

[GID-2789239](#) Transaction History Attributes (WH0100.14.01)

[GID-2789284](#) Business Logic (WH0200.03.04)

[GID-2789287](#) Context Variables (WH0200.04.02)

[GID-2789289](#) Business Logic (WH0200.04.04)

[GID-2789294](#) Business Logic (WH0200.05.04)

[GID-2789314](#) Business Logic (WH0200.09.04)

[GID-2789336](#) Transport Order End Actions (WH0300.01.04)

[GID-2789345](#) Check Logistic Unit Movement (WH0300.02.05)

[GID-2789346](#) Check Payload Movement (WH0300.02.06)

[GID-3108874](#) MES Ownership of Work Centers and Stations (WH-479)

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[GID-2789364](#) Data Migration from the Previous Software Version (WH0400.01.02)

[GID-2789369](#) Audit Log (WH0400.03.01)

9.2 Added Requirements

[GID-3308307](#) Part Class Assignment Attributes

[GID-3308332](#) Assign Users to a Part Class

[GID-3308357](#) Part Class Access Privileges

[GID-3308340](#) Export of Part Classes

[GID-3308355](#) Import of Part Classes

[GID-3308291](#) Part Class Editor Extension

[GID-3393792](#) Sublot Cold Chain History Operations

[GID-3393919](#) Cold Chain Capabilities

[GID-3393775](#) Sublot Cold Chain History Editor

[GID-3453925](#) Display current Cold Chain Data of a Sublot

[GID-3521834](#) Assign Part Classes to a Temperature Range (Part) (WH0100.15.02.04)

[GID-3521835](#) Temperature Range (Part) Access Privileges (WH0100.15.03)

[GID-3308329](#) Part Class Operations

[GID-3521833](#) Delete a Temperature Range (Part) (WH0100.15.02.03)

[GID-3521828](#) Temperature Range (Part) Attributes (WH0100.15.01)

[GID-3253729](#) Introduction

[GID-3521827](#) Temperature Ranges (Part) Editor

[GID-3521830](#) Temperature Range (Part) Operations

[GID-3556823](#) Part Class Attributes

[GID-3576325](#) Create Payloads for Sublots and Set TITR Data

[GID-3579449](#) Edit Part Class

[GID-3540690](#) Assign Parts to a Part Class

[GID-3619054](#) Goods Receipt Cold Chain Data Initialization

[GID-3619025](#) Attributes

[GID-3589266](#) Correct TITR

[GID-3650939](#) Transport Order Start Actions

[GID-3393786](#) Sublot Cold Chain History Attributes

- [GID-3393795](#) Sublot Cold Chain History Access Privileges
- [GID-3521829](#) Temperature Range (Part) Assignment Attributes
- [GID-3521831](#) Add a Temperature Range (Part) (WH0100.15.02.01)
- [GID-3521832](#) Edit a Temperature Range (Part) (WH0100.15.02.02)
- [GID-3393921](#) Cold Chain Data Initialization at Sublot Creation
- [GID-3393957](#) Cold Chain Data Update after Sublot Movement
- [GID-3565781](#) Cold Chain Data Inheritance at Sublot Split
- [GID-3609224](#) Cold Chain Data Inheritance at Sublot Merge
- [GID-3623443](#) Correct TITR actions
- [GID-3650937](#) Cold Chain Data TO Start Action
- [GID-3650938](#) Cold Chain Data TO End Action
- [GID-3650903](#) Read Sublot TITR Data
- [GID-3576326](#) Set Sublot TITR Data
- [GID-3576350](#) Add Sublot TITR Data

9.3 Deleted Requirements

GID-3108912 MES Ownership of User and User Groups (WH-485)

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